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Section One of Two Sections

(CONTENTS ON PAGE 356)

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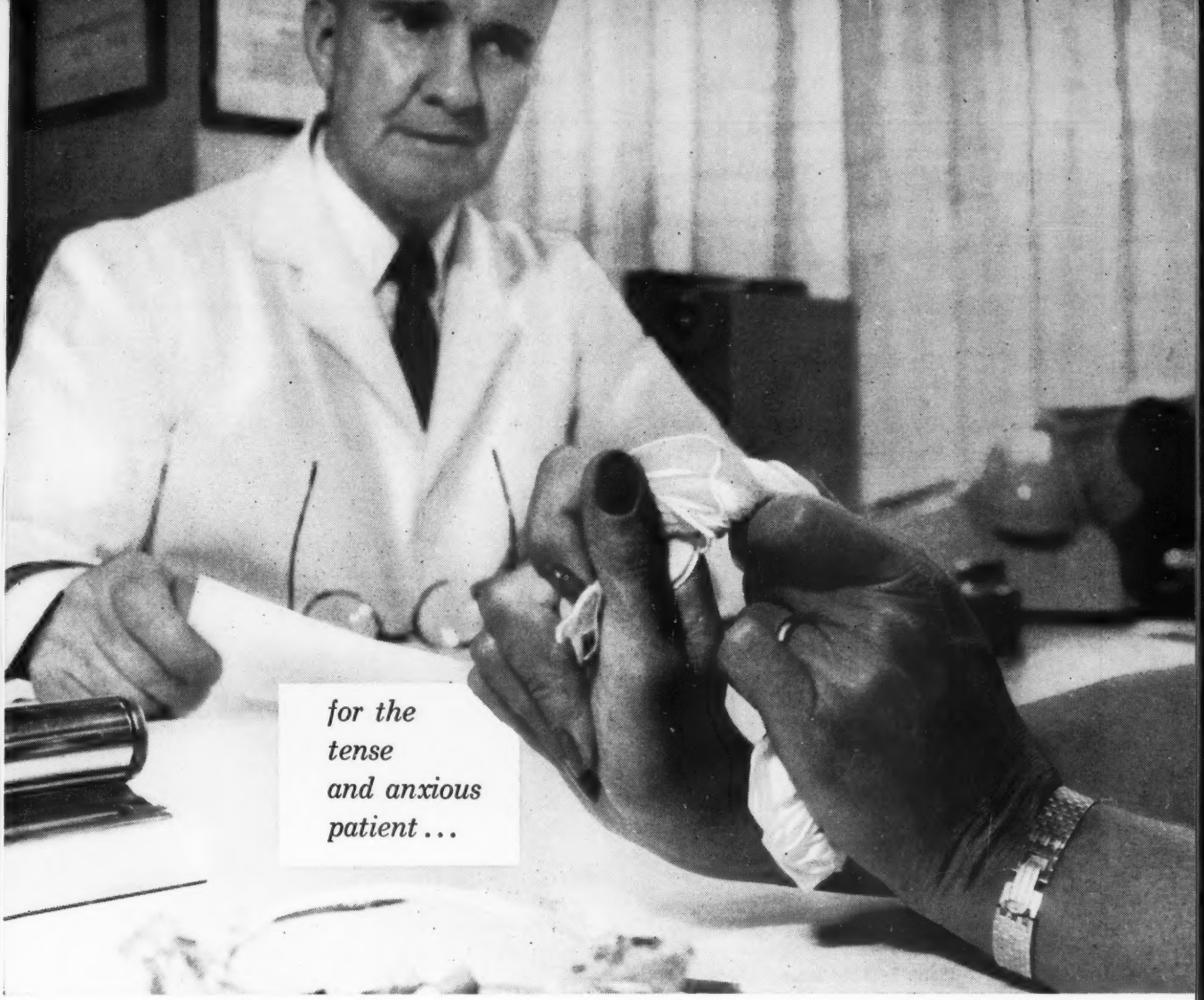

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Volume XXII JULY 1961 Number 7

DISEASES *of the* Nervous System

Contents

A STUDY OF SUICIDE IN A MENTAL HOSPITAL 365
Arnold R. Beisser, and James E. Blanchette
SIDE EFFECTS AND LABORATORY FINDINGS DURING COMBINED DRUG THERAPY OF CHRONIC SCHIZOPHRENICS 370
Eugene M. Caffey, Jr. and C. James Kiett
RESPONSE OF SCHIZOPHRENICS TO A BRAIN-WASHING TECHNIQUE 376
Beverley T. Mead, and John P. Rollins
EFFECT OF NONCONVULSIVE ELECTROSTIMULATION UPON SOME SIDE EFFECTS OF ECT 382
Sidney E. Pulver and E. Gardner Jacobs
METHOHEXITAL (BREVITAL): A NEW ANESTHETIC FOR ELECTROCONCLUSIVE THERAPY 388
Frank J. Ayd, Jr.
THE PSYCHIATRIC TEAM GEARED TO INTENSIVE TREATMENT 391
Lorant Forizs
RELATIONSHIP OF SOCIAL CLASS TO THE USE OF HYPNOTICS IN HOSPITALIZED DEPRESSIVES 396
James B. Allison and J. Cornell DeWitt
AN UNUSUAL CENTRAL NERVOUS SYSTEM COMPLICATION OF PERPHENAZINE 398
Jacob H. Friedman, Isidore Frimmer and Subhash Vasudeva
OBSTACLES IN THE PSYCHOTHERAPY OF PSYCHOTIC PATIENTS 401
Irving M. Rosen and Ira Friedman
COMMENTS ON THE PRESENT STATUS OF CHILD ANALYSIS 404
Herbert Freed
SUBJECTIVE FEELINGS ABOUT TRANQUILIZING DRUGS 408
Lewis J. Sherman
BOOK REVIEWS 408

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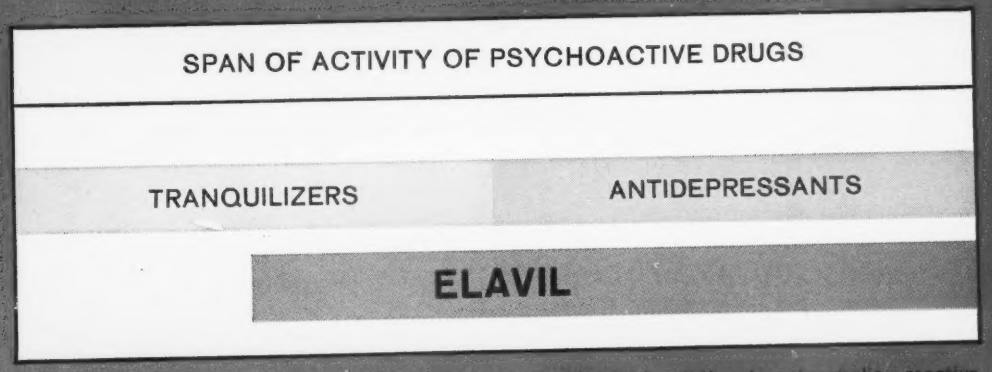

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DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

A Study of Suicides in a Mental Hospital

ARNOLD R. BEISSER, M.D., and JAMES E. BLANCHETTE, M.D.

Considering the importance of the topic it seems strange that relatively few scientifically controlled investigations of suicides in mental hospitals have been made. Contributing to the difficulty of conducting such a study has been the tendency of those immediately concerned to deny and suppress the event. This occurs not only on the part of the family but also with the professional staff involved. It has often been suggested that suicide rates are much higher than reported.[1] Recently researchers have begun to investigate intensively many facets of suicide with careful psychiatric, psychological and sociological studies.[2] However, relatively few of these studies have dealt with completed suicides which occur in mental hospitals. This lack is all the more impressive in the light of the fact that complete records are available and that the staff is attuned to psychiatric problems.

The present study reviewed all of the suicides which occurred in a single state hospital (Metropolitan State Hospital, Norwalk, California) from the year of its opening, 1916, to and including 1958.[3,4] Items for examination were selected which have been described as significant by other investigators. The results were then compared with a control group of hospital patients who did not commit suicide and, where possible, with suicides of non-hospitalized patients.

Although the literature on suicide is voluminous, few works in the English language deal with completed studies of suicides in hospitalized mental patients. The major part of this literature reports suicide attempts or completed suicides in the non-hospitalized patient.

Lipschutz,[3] in reviewing the literature in 1942, referred to an article written in 1903 by Benham which described 201 cases of suicide in mental hospitals in England and Wales from 1890 to 1902. Benham recommended that specific precautions and careful observations be made. Lipschutz also described 18 cases which occurred within the period from 1929 to 1941 at Eloise Hospital in Michigan. He emphasized that the schizophrenic patient is a potential suicide and he discussed the importance of the physical setting in prevention. In 1933 Jameison and Wall[4] discussed 14 instances which occurred from 1912 to 1932 at Bloomingdale Hospital (now New York Hospital, Westchester Div.) in New York. They emphasized the importance of previous attempts in prediction and the need for vigilance in early morning hours. They described a constellation of symptoms for the recognition of the suicidal patient. Wall[5] in 1944 extended the previous study and reviewed 33 suicides which occurred at Westchester Division of New York Hospital from 1933 to 1943. He also pointed out the importance of the patient's relatives, the life situation, and the need for careful observation. Woolley and Eichert[6] in 1941 studied the record of suicides at Sheppard and Enoch Pratt Hospital in Maryland from 1930 to 1938. They noted that every mentally ill person is a potential suicide and that excessive restrictions may actually increase the danger of suicide. Banen[7] in 1954 discussed suicides in veterans' facilities from 1928 to 1953. Eleven suicides occurred while patients were hospitalized. The extreme difficulties of prediction and prevention were elaborated. A study in 1953 by Levy and Southcombe[8] reported suicide rates in a state hospital over a 58 year period and discussed the effectiveness of electric shock.

Method

All death certificates at Metropolitan State Hospital, Norwalk, from 1916, the year the hospital was opened, to and including 1958, were reviewed. There were 75 cases where the suicidal act was performed in the hospital; of these 71 were Caucasians, two were Negroes and two were Japanese. This study focused on the 71 Caucasians in order to have a more homogeneous group and eliminate the possibility of unverifiable and confusing cultural factors. The hospital record of each of these patients was reviewed for 47 different items in the areas of personal and clinical characteristics, prodromal and social characteristics, and the suicide itself. This paper presents the results of the study.

A control group for purposes of comparison was selected by taking the next case by number which matched the suicide case for race and sex. This group was then studied in an identical manner. This procedure raises a methodological issue that this group of control cases (71) may not be a representative sample of the total non-suicidal hospital population. When the entire hospital population as of June 30, 1957 was studied for certain characteristics, and the control group for the study was compared with this total hospital population, it was found that there was a high order of agreement in marital status, educational level, commitment status, and age groups. However, in diagnostic categories the control group showed a lower percentage of schizophrenia (24%) than did the hospital population (52%).

A further comparison of the hospital suicide group was made with a group of suicides (768), the data for which was obtained from the County of Los Angeles for the year 1957 (LAC-57). The information available from this source included personal characteristics and the method of suicide. All of the data was subjected to statistical analysis for significant differences (criterion of $p + .05$ used).

Suicide rates reported by previous studies show extreme variations. They ranged from 5 per 222 patients in one study to 19 per 100,000 in another. In addition, fluctuations in rate by years in our own study did not necessarily coincide with fluctuations in other studies. It is evident that such rates by themselves have little meaning for comparison. Suicide rates are meaningful only when considered within the total framework of the individual institution. The myriad of factors which make the institution unique evidently play a role in the suicide rate.

Personal Characteristics

Of the 71 Caucasian patients who committed suicide, 62% (44) were males and 38% (27) were females. This compares closely with the LAC-57 figures of 70% (540) males and 30% (228) females. The predominance of male suicides is reported in other studies.

The mean age of the suicide group was 40.9 years for males and 46.7 years for females. When the age of the suicide group was compared by decades with the control group, the only significant difference was that 41% (11) of the female suicides were in the 50-59 year decade, while in the control group only 15% (4) were in this age group. This difference might, at least in part, be accounted for by the involutional period in females. One might speculate that this period of life is more dangerous from the standpoint of suicide for the more severely ill female patients who require hospitalization than for non-hospitalized patients. The LAC-57 data on distribution of ages closely compares with the age distribution within the hospital control group.

There was no significant difference in marital status between the LAC-57 and the control group, and no difference between female suicides and these two groups. However, it was found that there was a significant difference in males for marital status. The major difference in the males was that more of the control group, 23% (10), were divorced, as compared with the suicide group of 5% (2). No major differences were encountered when religious affiliations were studied.

Clinical Characteristics

The overwhelming majority of both groups was court committed as mentally ill. In the suicide group 92% (65) were committed, as compared with the control group of 85%

(60). The remaining cases were admitted either on voluntary status or committed for reasons other than psychosis (i.e., alcoholism, drug addiction or sexual psychopathy).

Because of the possibility of non-comparability within changing concepts of diagnostic entities, each case in both groups was carefully reviewed by the present authors and rediagnosed where necessary to conform to the 1952 Diagnostic Nomenclature. The major change was from manic-depressive psychosis to schizophrenic reaction. Although we recognize the difficulties inherent in such *post hoc* procedure, we thought it necessary in order to make the diagnoses comparable. Special caution was employed not to change a diagnosis unless the evidence for doing so was clear. As a result of this procedure it was found that 45% of the total suicide group were diagnosed as schizophrenic (males: 55%, 24; females: 35, 8). The total hospital population as of June 30, 1957 revealed that 52% were diagnosed as some form of schizophrenia.

It was found that the distinguishing clinical characteristic between the two groups was the depressive element. When the cases were studied in terms of behavior patterns such as assaultive behavior, escape attempts, refusing to eat, etc., or when the presence of hallucinations or delusions, etc., were studied, no significant differences between the two groups were found. Existence of depression was determined from doctors' and nurses' notes and was studied independently of diagnosis. There was a high frequency of depressive features in the suicide group in which 83% (59) were described as depressed. Only 28% (20) of the control group showed this symptom. The high frequency of depression, combined with the diagnosis of schizophrenia seems important.

In the suicide group 62% (44) committed suicide within six months of admission; 27% (19) committed suicide within the first thirty days of hospitalization. It would therefore appear that the first six months is the time of greatest danger. However, we found that 26% (18) had been in the hospital longer than one year. One patient had been hospitalized over 18 years and another over 12 years. It is evident then that even the chronic hospitalized patient after many years may take his own life. Both of these patients had often made suicidal threats and one had also previously attempted suicide. The duration of emotional disturbance prior to hospitalization was not significantly different for the two groups.

It has been pointed out in previous studies[9] that the person who makes one suicide attempt is apt to make another and finally to succeed. Our data support this opinion. Of the suicide group 50% (40) had made previous attempts, while in the control group only 14% (10) had done so. Similarly, 51% (36) of the suicide group had made previous suicidal threats, while in the control group 16% (11) had done so. Both in attempts and threats the difference between the suicide and the control groups was statistically significant.

Tranquilizing drugs were introduced into our hospital in 1954 but the first sizeable budget for these drugs was recorded in 1957. Eight of the nine suicides which occurred in 1957 were being treated with reserpine or phenothiazine derivatives, while only two patients in the control group were receiving these drugs. The significance of this finding will be discussed later.

Electroconvulsive treatment was used with ten patients in the suicide group and four patients in the control group. Other treatment methods were used with approximately the same frequency for both groups.

When the course of the patient's illness during hospitalization was evaluated, it was found that in approximately one-half of the suicide group, 54% (38), the psychiatric status was progressively deteriorating, while only 17% (12) were improving. The remainder had shown essentially no change. The reverse was the case with the control group, with 54% (38) showing improvement in psychiatric status, while only 37% (26) were showing a downhill course.

The Suicide Act

Although it has been stated that there are seasonal variations in the commission of suicide, our search revealed no consistent pat-

tern. When the time of day was studied it was found that suicides were spread over the entire 24-hours. However, the hours of 5-7 a.m. were encountered most frequently, with 23% (16) suicides. Lipschutz also commented on the frequency during these hours.

Study of methods of suicide revealed that an extremely high number used hanging or strangulation, 89% (62). This is an impressive finding when compared with a 13% figure found in the LAC-57 data. Only one of the hospital cases used toxic substances (drugs, poison, gas) and one firearms, which together accounted for 76% of the LAC-57 group. Poisons and firearms are, of course, almost totally unavailable in the hospital.

Seclusion rooms were once extremely common for disturbed patients but more recently this has decreased markedly. In most mental hospitals seclusion is used reluctantly and only when insufficient personnel make it necessary. With this background it is an important finding that about half, 52% (37), of the suicide group were in seclusion at the time of the suicide. Thirty-four per cent (24) occurred on the ward other than in seclusion, and the remaining cases occurred on the hospital grounds.

Discussion

In previous studies dealing primarily with non-hospitalized patients it has been found that three of four completed suicides were preceded by attempts or threats.[10] In the present study of hospitalized patients this was found to be high; we found only about fifty per cent. This suggests that although such previous attempts and threats are useful criteria to help in assessing the suicidal potential, they are less reliable in the hospitalized patient. A number of writers[11,12] have commented upon the relatively less predictable nature of hospitalized patients. Whether this is because of the nature of the patient or because insufficient information is obtained has not been brought out.

An impressive finding regarding the location of the suicide is that half of the completed suicides occurred in isolation rooms. Of those patients who committed the act in this location approximately half of the men and a fourth of the women were among the group who had not made previous attempts or threats. Enforced physical isolation can be a frightening experience for the person who already feels estranged. When cut off from human relationships the only available objects are internalized ones. The use of isolation has decreased in our hospital in recent years and is presently used only rarely with patients whose aggressive behavior is such that they cannot be handled by our personnel. The assaultive patient when physically secluded may turn his aggression upon himself and commit suicide. Such may well have been the result with those patients who had not shown a predisposition to suicide but who committed the act while isolated. Their behavior is consistent with some theories of causes for suicide, e.g., loss of love-objects and self-directed aggression.[13] It also points up the importance of understanding the individual needs of the patient and the seriousness of separating him from human contacts.

Nearly 90% of suicides in the hospital occurred by strangulation and hanging. This is impressive when compared with the finding of only 14% in the community group. It would appear to be mainly because of the lack of availability of other methods. It would seem that the need of the patient to kill himself is more important than the symbolism of the method selected. The intensity of the wish to die is dramatic in the hospital patient who, deprived of poisons, sharp instruments, firearms, even his shoelaces and belt, may still use his shirt to throttle himself. One can only wonder about the effect of depriving the potentially suicidal patient of these means. It may be that they are important symbols of his contact with others. Their removal may be similar to the effect of the isolation room and serve as impressive testimony to the patient's loss of human relationships.

Although many changes have occurred in the hospital over the 42-year period reviewed, with great improvement in patient care, there has been little change in the incidence of suicide. The hospital population remained almost constant during the years

studied. There were between 0 and 4 suicides each year, with the mean approximately 2. Two years were notable exceptions: 1934, in which there were 8; and 1957, in which there were 9. Time has obscured much of the information concerning the year 1934, and, in spite of careful review of the records and discussion with personnel employed at that time, little was found. The year 1957 presented a different situation with one striking finding. Tranquilizing drugs were first introduced into this hospital in 1954, but their use was minimal because no sizeable budget for their use was available until 1957. Prior to 1957 none of the suicide patients had been receiving the drugs, but 8 of the 9 suicides in 1957 were receiving reserpine or phenothiazine derivatives. In the control group only 2 of 9 were treated with these drugs. All of the suicide group had shown depressive features, and 7 of 9 patients had made previous threats or attempts. The danger of the use of ataractics in suicidal and depressed patients has been mentioned frequently.[14] The reasons for this correlation of high suicide rate and use of tranquilizers are not evident. It is important for one to keep in mind the essential point that temporal concomitance is not necessarily identical with causality. It is possible that there were other factors besides the pharmacological effects of the drugs. Staff members might have felt that their vigilance could be relaxed since a new effective treatment agent was being employed.

We wish to point out the limitations of the present study. It is a survey and can only indicate the direction for more detailed investigation in specific areas. As a retrospective work it can discern trends and suggest hypotheses but an immediate study in depth of each suicide is necessary to confirm these.

Summary

Hospital records of patients who committed suicide over a 42 year period in a state hospital were reviewed. This group was compared with hospital patients who did not commit suicide and persons who committed suicide who were not hospitalized. The personal characteristics of all of these groups were generally similar. Significant warning signals were found to be depressive features, the first six months of hospitalization, previous threats or attempts and a progressively down hill course. Availability appears to determine the method of suicide, and strangulation and hanging suggest the seriousness of the illness and determination to complete the act. The isolation of patients in seclusion rooms constitutes a special hazard. The introduction of tranquillizing drugs coincided with the highest yearly incidence of suicide.

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Side Effects and Laboratory Findings During Combined Drug Therapy of Chronic Schizophrenics

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The Veterans Administration Cooperative Studies of Chemotherapy in Psychiatry[1] have provided an opportunity to observe the incidence of side reactions and deviant laboratory findings in large numbers of patients treated under standard double-blind conditions with a variety of psychotropic drugs.[2-4] The experience has been that complications of any sort have been neither excessive in frequency nor of great degree.[5]

The present data were obtained in a study of combined drug therapy with chronic apathetic schizophrenics who had not responded well to conventional drug therapy. There were 520 such patients obtained from 26 VA hospitals for 20 weeks of treatment by the addition of dextro-amphetamine, imipramine, isocarboxazid, trifluoperazine or placebo capsules to their current maintenance dose of chlorpromazine. These patients had been receiving between 200-600 mg. chlorpromazine for at least two months prior to the study and continued to receive it at their individually established dose in addition to whatever study capsules they were randomly assigned. With the exception of chlorpromazine which all patients received, treatment was double-blind, being dispensed in identical appearing capsules of the following strengths: dextro-amphetamine, 10 mg.; isocarboxazid and trifluoperazine, 5 mg.; imipramine, 37.5 mg. During the first four weeks, a predetermined dosage schedule was followed: days 1-3, one capsule; 4-7, two capsules; 8-14, three capsules and 15-28, four capsules. During the remaining 16 weeks, a flexible schedule, within the limits of one to six capsules daily, was permitted at the discretion of the treatment physician. By the final weeks of treatment, between 56% and 66% of each drug group were on maximum dosage.

From Veterans Administration Hospital, Perry Point, Md.

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Results

Dropouts

Twenty-seven patients were terminated early because of medical complications not necessarily related to the study drugs. Table I contains the frequencies of dropout for various reasons in each drug group. The dextro-amphetamine group contributed the greatest number overall ($X^2 = 20.67$, $P < .001$), but the differences among the drugs for specific reasons are not significant. Of the two patients dropped for deviant laboratory tests, the one receiving dextro-amphetamine had a pretreatment SGO-T titer of 99 units; by the second week the level reached 164 units but dropped to 80 units by the third week. Although a battery of other hepatic tests gave normal results, it was deemed advisable to discontinue his medication as he might be receiving a monoamine oxidase inhibitor under the double-blind conditions of study. The patient receiving trifluoperazine showed a worsening in his illness, and sporadic abnormal hepatic tests, but was finally terminated in the 14th week because of the development of leukopenia.

TABLE I

Patients Terminated Early for Medical Reasons

REASON	Dex	Imi	Iso	Tri	Pl	Total
Condition worse	3	1	2	1		7
Intercurrent illness	1	2	1	1		5
Neurological effects	1			3		4
Ulcer or G.I. bleeding	2			1		3
Weight loss	3					3
Deviant lab. tests	1			1		2
Tachycardia	2					2
Hypotension			1			1
Total	13	3	4	7	0	27

Abnormal Signs and Symptoms

Clinically observable side effects were recorded weekly by the treatment physician on a standard checklist containing a comprehensive list of symptoms and signs reported to accompany treatment with chlorpromazine and the study drugs. Notation of symptoms and signs not covered was requested but few such "write ins" were recorded. Baseline evaluations were also requested prior to the study. In tabulating the recorded items from the checklist, if a patient was reported as showing a particular symptom at any time before or during the study period, he was tallied once regardless of whether the symptom occurred during one or more weeks. These tallies were first inspected to determine if relationships existed between the maintenance dose of chlorpromazine and incidence of side effects. No reliable differences in frequency of side effects by dosage level were found, either within a single group or over all groups combined.

Table II contains the frequency of side effects broken down into pretreatment and drug groups. Patients reported as manifesting a given symptom or sign before treatment were not tallied by drug group as it cannot legitimately be claimed that the treatment produced the symptom. No complications before or during the study were reported for 255 of the 462 patients (55%). The incidence of specific side effects was low,

TABLE II

Number of Patients Manifesting Abnormal Symptoms and Signs Before and During the Study

SYMPTOM OR SIGN	Pre Treatment	Dex	Imi	Iso	Tri	Pl	Total
CENTRAL NERVOUS SYSTEM							
Akathisia (inability to be still)	10	7	1	5	5	3	21
Extrapyramidal syndrome	3	5	2		9	1	17
Tremor (not extrapyramidal)	13	2	3	1	2	4	12
Disturbance in coordination	8	2	1	1	4	4	12
Dystonic syndrome (spasm)	3		1	1	4		6
Peripheral neuritis	1			2	1		3
Paresthesias	2				1	1	2
Seizures	1			1			1
AUTONOMIC NERVOUS SYSTEM							
Cardiovascular disturbance	4	4	10	9	9	4	36
Dizziness, faintness, weakness	6	6	4	9	9	1	29
Sweating	7	6	7	2	7	4	26
Dryness: mouth, throat	10	7	4	3	2	3	19
Nausea, vomiting	9	5	3	3	4		15
Increased salivation		3	1	2	4		10
Disturbed sexual function	7	2	3	2	3		10
Constipation	5	1		4	1	1	7
Diarrhea			4		1	1	6
Urinary disturbance	2	1	1	1	1		4
ALLERGIC REACTIONS							
Itching, rashes, eruptions	7	2	2	2	1	4	11
Photosensitivity	4		2	2	1	1	6
OTHER REACTIONS							
Drowsiness, somnolence	22	5	7	6	7	6	31
Sleep disturbances	5	5	2	5	4	3	19
Loss of appetite	3	10	2	2	2	1	17
Headache	4	1	1	2	3		7
Edema	1	1	1		1	1	4
Other visual disturbances	4				1	1	2
Defective red-green vision	3						
Weight gain or overeating			1	1	1		3
Dyspeptic symptoms			2				2

the most common one, cardiovascular disturbance, being reported for only 36 patients. Examination of the frequency with which patients manifested these symptoms prior to the study makes the subsequent appearance of many of them seem even more trivial. In general, the side effects that did occur during treatment appeared in the early weeks with relatively few new occurrences in the last two or three months of the study.

Among the central nervous system symptoms, akathisia and the extrapyramidal syndrome were more common than the others but the differences among drugs was reliable only for the latter ($X^2 = 17.75$, $P < .01$) to which the trifluoperazine group contributed the greatest number. As it was suspected that a number of cases of generalized restlessness may have been listed as akathisia, the extrapyramidal symptoms (akathisia, extrapyramidal and dystonic syndromes) were combined by counting the number of individuals showing any one of the group. Trifluoperazine maintained its position as chief producer of extrapyramidal disturbances but dextro-amphetamine became a close second, largely because of the number of instances of "akathisia" attributed to it. Jitteriness and irritability are well known effects of amphetamines, but the peculiar neurological disturbance of akathisia found with phenothiazines and reserpine has not been described with them.[6] If these were genuine cases they may have been due to chlorpromazine or its interaction with dextro-amphetamine.

Symptoms attributable to disturbed autonomic nervous system activity were a trifle more common but no reliable differences among treatment groups were found. Of the remaining symptoms including "write ins" only loss of appetite, most prominent in the dextro-amphetamine group, was differentially related to treatment ($X^2 = 21.51$, $P < .001$).

Laboratory Data

Total and differential leukocyte counts and hepatic function tests were obtained before treatment, weekly for the first four weeks and bi-weekly thereafter. The average total leukocyte count before treatment was 8,157 per cubic milliliter with a standard deviation of 2,697 and range of 3900 to 21,850. Fifteen patients had control leukocyte counts over 13,500 or leukocytosis by our definition; 68 had initial counts over 10,000 or leukocytosis by ordinary standards. Twenty patients had total leukocyte counts of 5000 or less, and two of 4000 or less. None had absolute neutrophil counts below 1800, which was our definition of leukopenia. Seven patients had initial eosinophil counts of seven per cent or more, eosinophilia by our definition.

The hepatic function tests most commonly reported were those recommended in the study protocol, reproduced in the Transactions of the Fourth Annual Research Conference on Chemotherapy in Psychiatry. The SGO-T (serum glutamic acid oxaloacetic transaminase) and the alkaline phosphatase levels are reported in several kinds of units. Serum bilirubin, bromosulphthalein retention and cephalin flocculation tests were reported in much smaller number. The average of 325 SGO-T tests obtained just before the study was 21 units with a standard deviation of 10 units and range of 1-64 units. Sixteen patients had initial SGO-T titers over 40 units which was our definition of abnormal. The mean value of 140 pretreatment alkaline phosphatase tests was 3.3 Bodansky units with a standard deviation of 1.7 and range of .9-8.04. Only one of these was abnormal (>8 Bodansky units). Criteria of abnormalities for other hepatic tests were: serum bilirubin, >1.2 mg./100 ml.; BSP retention, >8%; and cephalin flocculation, >3+ at 48 hours.

The frequency by drug group of abnormal hematologic and hepatic data during treatment are shown in Table III. Inspection shows no appreciable difference among the drug groups and a generally low incidence of abnormalities. Tallies were made as previously described. However, since many patients had only an isolated deviation, a separate tally was made of those showing two or more abnormalities on a given type of evaluation. The SGO-T test contributed the majority of abnormal hepatic tests shown in

Table III. Only one patient had deviant readings on more than one kind of hepatic test. Most of those patients with more than one abnormal value on a particular hematologic or hepatic test had only two or three such values, not necessarily in consecutive weeks, with the remaining values being in the normal range. A few individuals had an initial leukocytosis which persisted through the course of treatment at surprisingly high levels. There were also a number of instances in which a distinct trend of high SGO-T titers were evident over a span of weeks but this phenomenon was evenly spread among the study groups. One patient was dropped from the study because of leukopenia; none for agranulocytosis. One patient with continuing high SGO-T titers was dropped but no cases of jaundice were reported.

TABLE III

Number of Patients with Abnormal Laboratory Data During Treatment

LABORATORY FINDINGS	Dex	Imi	Iso	Tri	Pl	Total
Abnormal Hematologic Tests						
Eosinophilia						
One week only	8	5	8	7	4	32
Two or more	2	5	1	3	5	16
Leukocytosis						
One week only	6	7	6	6	12	37
Two or more	4	4	2	9	3	22
Leukopenia						
One week only	1	1	3	3	3	11
Two or more	3	0	2	0	1	6
Abnormal Hepatic Tests						
One week only	4	7	7	9	6	33
Two or more	8	10	8	6	6	38

Blood Pressure

Blood pressure was recorded twice weekly for the first four weeks of treatment, one-half to one hour after the morning dose of medicine, with the patient standing. Tallies were made of those patients showing a decrease of 30 mm. or more in systolic pressure or 20 mm. or more in diastolic pressure; 71 patients showed decreases of this magnitude in at least one pair of readings; 21 of the group were receiving imipramine; the remainder of the 71 was evenly divided among the other study drugs, 12 to 13 patients for each.

Weight Change

Table IV contains the average weight of the five study groups before and after 4, 16 and 20 weeks of treatment. Weight data were not available for all 462 patients at each of these occasions so the statistical evaluation of weight change was based upon 439 patients having both pretreatment and 20th week recordings. The difference among groups in average weight change over 20 weeks of treatment, adjusted for differences in initial weight by analysis of covariance, was highly significant ($F=18.794$, $P<.001$). The addition of trifluoperazine to chlorpromazine was not accompanied by significantly more weight gain than chlorpromazine alone (placebo) nor was there a reliable difference between the imipramine and isocarboxazid combinations. Patients receiving either imipramine or isocarboxazid gained significantly more than those receiving trifluoperazine or chlorpromazine alone. All groups also showed a significant change in weight from pre to post treatment; the dextro-amphetamine group losing and all others gaining weight. The loss of weight, averaging 4.5 pounds, in the dextro-amphetamine group is consistent with the fact that three patients from this group were terminated early because of weight loss, and that one of the two significant differences among drugs in side reactions was loss of appetite in this group. The weight gain for the other groups were: imipramine—12.5 pounds, isocarboxazid—9.5 pounds, and for the remaining, phenothiazine groups—approximately four pounds.

TABLE IV

Average Weight Before and During Treatment

DRUG GROUP	No.	Pre-Treatment	After 4 wks	After 16 wks	After 20 wks
Dextro-Amphetamine	75	169.43	165.88	164.83	165.04
Imipramine	91	162.51	166.66	174.84	174.90
Isocarboxazid	90	165.26	169.48	174.11	174.54
Trifluoperazine	87	168.28	167.99	173.20	172.74
Placebo	96	168.11	168.95	171.95	172.03

Table V presents the distribution of individual weight changes. A loss or gain of five pounds is considered to represent normal variability in weight. One-third to one-half of the patients fall within this range. Only 18% of the dextro-amphetamine group gained, while 41% lost weight. On the other hand, 68% of the imipramine group gained and only 4% lost. The extremes of individual weight change over five months were a loss of 52 pounds to a gain of 84 pounds.

TABLE V

Weight Change Over Five Months

Percentage of Treatment Group

WEIGHT CHANGE	Dex	Imi	Iso	Tri	Pl
Over 35		4	6		1
26 to 36		7	7	6	3
16 to 26	1	25	13	10	9
6 to 16	17	32	36	31	25
—5 to +6	40	27	31	36	45
—6 to —16	25	2	4	13	11
—16 to —26	12	1	2	2	4
—26 to —36	4	1		1	1
Over —35			1	1	
N	75	91	90	87	96

Discussion

In most respects the findings reported here confirm the observations made during earlier VA cooperative studies. Complications attributable to treatment have been remarkably infrequent. Out of almost 2000 patients who have been included in the VA cooperative studies to date and have received a variety of active or control substances for up to six months, only 45 have had to be dropped from the study because of side reactions or deviant laboratory tests. It is not certain that even these complications were all due to drug therapy. No cases of agranulocytosis have been encountered. The one patient reported as having jaundice was receiving phenobarbital. Many other abnormalities were reported but, as in the present study, they often appeared sporadically and did not present major problems. Of interest was the observation of some abnormalities with phenobarbital or placebo.

In the present study, side effects and abnormal hematologic and hepatic function tests were not only infrequent, but their presence prior to the study was widespread, further detracting from the significance of their later appearance. Other factors made the assessment of these complications even more equivocal. The apparent impreciseness of the term "akathisia" has already been mentioned. As for the laboratory data, it must be remembered that while total and differential leukocyte counts seem to be precise, there is an inherent inaccuracy in leukocyte counts made from blood smears. Further, quantitative data derived from such preparations must be interpreted in the light of the variability to which the counts are subject.[7] In other words, sampling error and probability must be considered. In doing eosinophil counts on 462 patients before and 12 times during treatment, some 6000 counts were obtained. With such a large number, a good many deviant readings could be expected by chance alone even if the counts themselves were completely accurate. Our chief hepatic function test, the SGO-T, is quite subject to influence by a number of extra-hepatic factors.[8]

Review of the data by hospitals disclosed another possible source of ambiguity. Of the 17 patients who developed the extrapyramidal syndrome, seven were contributed by one hospital. Of the 80 patients who had at least one SGO-T reading above 40 units before or during the study, two hospitals contributed 17 each, and another 10. Over half of the 80 patients, therefore, came from three hospitals. At one of these hospitals, the experience of the laboratory and medical services has been such that they feel that 50 units should be considered the upper limit of normal rather than 40 units. The use of such a cut-off point would reduce by one-half the already low frequency reported here.

The major side effect of the study drugs and chlorpromazine was change in weight, clearly of undesirable degree in some instances. Weight data in these studies have been obtained without even specification as to the patient's state of dress, so that there are many possible sources of error. Nevertheless, analysis of the weight changes in patients in the earlier studies shows that

both chronic and newly admitted schizophrenic men gained an average of eight to nine pounds in three months of treatment with chlorpromazine.[9] The tendency to gain continued for a long time, though not at the initial rate, with decline in weight beginning to appear when medication was discontinued. The rather startling effects of the newer non-phenothiazine drugs upon weight in this chronic schizophrenic sample are perhaps not as important as confirmation of the observation that even such long-treated patients as these will gain weight with continued administration of chlorpromazine. The results in the dextro-amphetamine group suggest that this phenomenon might be controlled by regular concomitant use of dextro-amphetamine if an optimal non-disturbing dose can be determined. The impressive gains of the imipramine and isocarboxazid groups are difficult to interpret, although it is obvious that they exceed that attributable to chlorpromazine alone. Excessive weight gain has not been reported as a serious side effect of these two drugs and Feldman reports having to drop three patients from treatment because of weight *loss* in his study of imipramine given to anergic schizophrenics.[10]

Summary

Data pertaining to side effects and laboratory findings were obtained over a 20 week period as part of a large-scale cooperative study of the action of dextro-amphetamine, imipramine, isocarboxazid, trifluoperazine and placebo added to the maintenance regime of chlorpromazine with chronic withdrawn schizophrenic men. As had been noted in earlier studies in this series, complications were neither frequent nor troublesome, demonstrated great variability in terms of sporadic appearance including the baseline observations, and seldom necessitated removal of patients from the study. There were no cases of jaundice or agranulocytosis and only two patients were dropped because of deviant laboratory reports.

Extrapyramidal symptoms were more frequent with trifluoperazine, and dextro-amphetamine was accompanied by loss of appetite. The major side effect was change in weight of considerable magnitude.

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Response of Schizophrenics to a Brain-Washing Technique

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Introduction

Desperate circumstances have long stimulated desperate remedies. Every psychiatrist familiar with the institutional care of psychotics has often been delighted with the remarkable improvement obtained from various new psychotherapeutic medications. Despite these gratifying results, there still remains a certain group of severe and generally chronic schizophrenics who have successfully resisted the best therapeutic approaches. Searching for any possibility which might favorably influence the attitudes and behavior of these unfortunates, the authors have experimented with a technique suggested by the much-publicized brain-washing methods reportedly used to change the ideological views of prisoners in certain foreign countries.

Background

Inducing discomfort, fear, and even actual pain has been utilized innumerable times by well-meaning psychotherapists in order to frighten the patient out of his psychosis. Such therapy found particular favor in the 18th and 19th centuries when, for example, Benjamin Rush used the device of dropping the unsuspecting patient into cold water, and Johann Reil tried shooting off cannon unexpectedly behind the patients. Even today it is often suggested that much of the success of different forms of shock treatment may be attributed in part to the fear and discomfort created in the patient. Such brutal methods, however, are crude in comparison with the elaborate brain-washing techniques but are not based on exactly the same premise. The original idea of creating an unpleasant situation for a patient was simply the hope that some painful or shocking experience would "snap him out of his illness," or, at best, the patient, realizing that his mental condition was responsible for his treatment, would flee into normality to escape the stress. This is the most elementary objective in brain-washing. The principle may still be inherent but accompanying the discomfort of a present situation is added either subtle or monotonously repetitious suggestions for alternative action to escape the situation.

One of the authors was involved in a recent study which dealt with the same problem of trying to find a new therapeutic approach for the treatment-resistant chronic schizophrenic.[21] In that controlled study large doses of a common stimulant were used prior to the intensive use of chlorpromazine. Results of the study were encouraging but did not present a really practical therapeutic approach. At the time of that study, however, various physical means of stimulating the patient were considered, discussed, and rejected—generally for one of three reasons: 1. Some methods were considered to be too sadistic. 2. Some methods would require too much elaborate and expensive equipment or a large number of especially-trained personnel. 3. Certain methods were rejected because it was believed that the reaction to the stimulus would vary too much in individuals or that tolerance might quickly develop.

One method did present itself, however, which the authors believed could be set up to avoid the foregoing objections. The technique simply involved prolonged, periodic isolation, combined with constant verbal stimulation. This technique, described herein in detail, may be recognized as basically similar to techniques reportedly used in recent and medieval times in attempts to affect an individual's political or religious thinking. In fiction, also, the idea is presented in disturbingly impressive fashion by George Orwell in his novel, *1984*.

Hypothesis

As suggested, the experimental work in this study was based on the belief that certain psychotic patients, particularly chronic, apathetic schizophrenics, might respond to an uncomfortable situation and verbal stim-

ulation despite their prior failure to respond to various traditional therapeutic methods and medications. No one aware of the experimental work and acquainted with the extremely severe, regressed psychotics involved believed that this procedure would actually effect a cure. It was chiefly hoped that improved behavior, such as better socialization, would result, or that there might possibly be a better response to ataractic medication. This hypothesis was based on an idea expressed by some investigators that many psychotics cannot be "dislodged from their symptoms" because they have found too much satisfaction and a comfortable adjustment in remaining schizophrenic. It was hoped that the experimental method, without being inhumane, might take away some of the satisfaction and at the same time offer more constructive substitutes.

Method

A. Physical Arrangement.

After considering a variety of techniques for utilizing verbal stimulation,[4-6,11,14,19,28,34] the following one was selected because it did not require elaborate physical equipment or a great number of especially trained personnel. Experimental patients were subjected to stimulation in four isolated rooms with no other patients in the vicinity. Each one of these rooms was approximately 6 x 10 feet, furnished only with a small, sturdy bed. These were typical isolation or seclusion rooms as are found in almost all institutions designed for the care of severe psychiatric cases. The rooms were not designed to be completely sound-proof but were virtually so because of the usual thick-wall construction and extra heavy door with small double-glassed observation peep-hole. The one window in each room was protected by a seclusion screen and during the entire time that the rooms were used for experimental purposes, an almost opaque window shade between the screen and the window completely obstructed the view to the outside and kept the interior of the room dimly lighted. Each room was then equipped with a small loudspeaker placed behind the window shade with the lead wires set outside across the window sill. Although concealed by the shade and inaccessible to the patient because of the screen, even low sounds from the speaker were audible within the room. In addition to these four experimental rooms, four other identical rooms were prepared for control subjects, but not equipped with loudspeakers.

With this physical arrangement it was possible to keep four patients in isolation with continuous verbal stimulation and four control subjects in isolation without verbal stimulation. Although each patient was able to act as his own control, utilizing the before and after evaluation, it was also considered best to evaluate concomitantly with the control group the effects of isolation alone without the verbal stimulation. A tape recording was prepared to play continuously for a full two hours. The content of the recording was a constant barrage of monotonous, repetitious, insistent suggestions, admonitions, and commands urging the listener to take more interest in the people around him, to talk to fellow-patients, nurses, aides, doctors, etc., frequently and spontaneously, to ask how he can get out of the hospital, to work on getting out of the hospital, to take stock of his present situation, and see how his life is being wasted as a chronic hospital patient. One can perhaps better imagine than describe what it might be like to sit in isolation for two hours with virtually all outside stimulation removed except for the constant wheedling voice. The recording was of good quality and before using the apparatus, it was thoroughly tested to insure that the enunciation was clear and the volume adjusted so that the sound would not be overbearing, but still loud enough not to be easily ignored. Much debate among the experimenters revolved around the most effective form of verbal stimulation. There was no agreement as to whether it would be best to use a lulling monotone, a more imperative voice frequently changing in pitch with dramatic pauses, or perhaps even a seductive female voice for an all-male experimental group. Being undecided, the experimenters produced a recording which combined some

monotone intervals interspersed by a few more dramatic periods.

Also, more or less arbitrarily, it was decided to keep both the experimental and control patients in their respective isolation rooms for a period of no more than two hours each morning, five days a week for two weeks. It was felt that more than twenty hours of isolation might be considered inhuman treatment. Only one of the patients (IV-E) made even a mild objection to the procedure.

B. Selection of Patients.

Initially an attempt was made to select eight patients from among a large group of regressed, chronic schizophrenics, all presenting a very similar clinical picture. Even with more than 100 patients from whom to choose, too many individual differences made this impossible. It was possible, however, to select four pairs of male patients, each pair representing a twinned picture of very similar clinical manifestations, history of similar onset and previous treatment, and even fairly similar social history. Once these pairs were selected, one of each pair was randomly chosen as an experimental subject, with his "twin" becoming the control. The eight subjects are briefly described below.

The first pair of patients designed as I-E (Experimental) and I-C (Control), were regarded as average, chronic schizophrenics, diagnosed as "Chronic, undifferentiated schizophrenia, with some predominance of hebephrenic symptoms."

Patient I-E: At the start of the experiment the patient was 29 years old and had been hospitalized continuously for nine years. He was described as always having been shy, quiet, and had been nicknamed "Dopey" in school. He left high school prior to his 17th birthday to enter the service, but within a year had a psychotic break with hallucinations and excitement. Over a period of time he was treated with electric shock, insulin, and various ataractic agents. Originally there was some temporary response to treatment, but at the time of the experiment he was generally withdrawn, apathetic, untidy, responding readily to questions, but often inappropriately and with silly grimacing. His Behavior Index on the MACC Scale (13) was 40.

Patient I-C: At the time of the experiment this patient was 26 and had been hospitalized continuously for over five years. He had left high school at 18 and worked as a laborer for two years before entering the service. He was discharged approximately six months later as "unsuitable for military service." Very shortly thereafter he had a psychotic break and was described as hallucinated, hyperactive, and silly. He had been treated variously with electric shock, insulin, and a number of ataractic agents, with little effect noted. At the time of the experiment he could be described as Patient I-E, above. His Behavior Index on the MACC Scale was 40.

The second pair of patients were regarded as the most severely psychotic of all in the group. They were virtually uncommunicative, giving no response to questions, or responding inappropriately. Both had a history of periods of soiling themselves; one was known to have a limited IQ prior to his psychosis; the other had some brain damage from a lobotomy. Both were diagnosed as "Chronic, undifferentiated schizophrenic reaction."

Patient II-E: At the time of the experiment the patient was 29 and had been hospitalized continuously for about seven years. Little is known of his early history, but he is believed to have completed either the ninth or tenth grade of school. He entered military service at 20 but was released in less than a year because of a psychotic break. He was treated extensively with electric shock and various ataractic agents. At 26 a prefrontal lobotomy was performed, with no encouraging results. At the time of the experiment he was described as withdrawn, with inappropriate speech and manner, and many bizarre delusions of mildly paranoid flavor. His Behavior Index on the MACC Scale was 12.

Patient II-C: At the time of the experiment the patient was 23 and had been hospitalized continuously for five years. He was described as having had odd behavior early in life and being very slow to learn. He entered the service at 18 but was discharged in three months as "unsuitable for military service." A few months later he had a psychotic break and was described then as "hebephrenic schizophrenic, delusional, hallucinating, silly, untidy." He was treated extensively with electric shock and various ataractic agents, but with no significant or lasting effects, and with periods of mute withdrawal, being silly, and having many bizarre, impossible delusions of mildly paranoid type. His Behavior Index on the MACC Scale was 15.

The third pair of patients were diagnosed as chronic, paranoid schizophrenics. They presented similar clinical pictures and identical behavior indices.

Patient III-E: At the time of the experiment the patient was 32 and had been hospitalized continu-

ously for six years, having had his first psychotic break at 23. He had completed high school and military service apparently successfully. His first two psychotic breaks responded well to electric shock therapy. Thereafter, there was no favorable response to such therapy and when the patient was 26 a prefrontal lootomy was performed with no apparent change in his course of illness. He was also treated with a variety of ataractic agents with no lasting results. At the time of the experiment he was described as withdrawn, responding to questions with an almost inaudible mumble, having bizarre ideation, never assaultive but occasionally threatening and negativistic. His Behavior Index on the MACC Scale was 18.

Patient III-C: At the time of the experiment the patient was 39 and had been hospitalized continuously for eight years, having had his first psychotic break at 26. He was reported to have been a bright student in high school who planned to enter college after discharge from the service. At 26 he was released from the service to care for his dependent mother, but was soon hospitalized for a psychotic break after attempting to kill her. He was treated repeatedly with insulin and electric shock, responding well after the first three psychotic episodes. Later he was treated extensively with ataractics with no significant or lasting improvement. His clinical picture was the same as that of Patient III-E. His Behavior Index on the MACC Scale was 18.

The fourth pair of patients were well matched, although quite different from the preceding three pair. They were considered chronic schizophrenics, but the duration of their illness was less and they still presented some elements of a more acute break, with some agitation, anxiety, and unpredictable behavior. They also appeared to be in better contact with reality. They were known to have had superior intelligence and had completed some college work. They were sons of rather prominent families associated with the teaching profession.

Patient IV-E: At the time of the experiment the patient was 26 and had been hospitalized continuously for three years, having had his first psychotic break at 21 which was treated by electric shock and resulted in considerable improvement. His hospital course, despite extensive treatment with ataractics, was very stormy. The patient was described as paranoid, withdrawn, aloof, demanding, and negativistic. His uncooperativeness and belligerency accounted for the Behavior Index on the MACC Scale of 15.

Patient IV-C: At the time of the experiment the patient was 34 and had been hospitalized continuously for two years. He had become increasingly withdrawn until he had a sudden paranoid, psychotic break. His hospital course was very stormy despite treatment with a variety of ataractics which gave no significant or lasting improvement. Electric shock therapy was considered but permission for it was refused. He was described clinically as similar to Patient IV-E, possibly even more demanding and negativistic, and seriously assaultive on several occasions. His Behavior Index on the MACC Scale was 15.

C. Evaluating Procedures.

Four methods were utilized to evaluate patients' reactions to stress situations. First, before and after psychological testing was administered by an examiner who was only vaguely aware of the experimental procedure and did not know which patients were the controls. Second, the use of the MACC Behavioral Adjustment Scale before and after the experiment. This scale describes a patient's level of Motility, Affect, Cooperation, and Communication, along with a Total Adjustment Score. The MACC Scale has been found to be valid in evaluating degree of mental illness and in estimating readiness for discharge in psychiatric patients. Since all patients on the wards used for the study were being rated at regular intervals, the raters were unaware which patients were controls, and many of the raters did not even know which patients were involved in the study. Third, personal evaluations by a nurse long familiar with all patients studied, although not aware which patients were controls. Fourth, personal evaluation by a psychiatrist responsible for care of these patients, who was aware of details of the study.

Results

A. Psychological Testing.

It must be understood that all patients were so severely psychotic that they ordinarily would be considered untestable. All attempts to utilize any of the better-known, detailed, evaluation tests were soon abandoned. Finally, only the following four tests were attempted for each patient: Rotter Sentence Completion; Benjamin Proverbs; Draw-a-Person; and Graham-Kendall tests. In general, it may be stated that the testing did not reveal anything significant, either before or after the experiment, although pos-

sibly some significance may be attached to the improvement in testing of Patients III-C and IV-E. The tests were administered within a week prior to the experiment and were given again within a week following the experiment. Results, very concisely, were as follows:

Patient I-E: Untestable on proverbs; other tests showed no change after the experiment. If anything, the results were slightly worse on the second test.

Patient I-C: Essentially no change from before to after testing.

Patient II-E: Untestable both times.

Patient II-C: Testable, but showed essentially no change. Possible slight improvement on Draw-a-Person test, but "quality so grossly psychotic, very difficult to evaluate."

Patient III-E: Untestable both times.

Patient III-C: Slight improvement on all four tests after experiment.

Patient IV-E: Some improvement on proverbs and sentence completion. Draw-a-Person test perhaps more amorphous second time.

Patient IV-C: Refused all testing.

B. The MACC Behavioral Adjustment Scale.

Fortunately for the purpose of this study a great number of patients, including those studied, had been routinely rated at periodic intervals. The raters were trained attendants and nurses long familiar with the patients studied and the rating procedure. No consistent picture of improvement or regression was noted. Some improvement after the experiment was shown with three of the experimental subjects and two of the control subjects.

C. Evaluation by Nurse and Psychiatrist.

The evaluations by the nurse and psychiatrist, made approximately ten weeks following the experiment, will be considered collectively since the opinions expressed were very similar but without collaboration.

MACC Behavioral Adjustment Scale

	Pre-Study Ratings		Post-Study Ratings	
	3 months prior	1 month prior	1 month after	3 months after
Patient I-E	38	40	60	59
Patient I-C	71	40	35	65
Patient II-E	2	12	40	50
Patient II-C	16	15	13	15
Patient III-E	21	18	12	24
Patient III-C	17	18	67	50
Patient IV-E	32	15	87	65
Patient IV-C	25	15	85	79

Patients I-E and I-C were considered to be relatively unchanged and apparently unaffected by the experiment. The psychiatrist felt that there might possibly be slight improvement in the control patient.

Patients II-E and II-C were felt to have improved, with possibly more improvement in Patient II-E. Improvement appeared to be largely through his increased ability to communicate. This may possibly have special significance since much of the verbal stimulus dealt with the subject of increasing and improving communication.

Patients III-E and III-C were considered to have improved slightly, with more improvement in Patient III-E. Again, this was considered by the psychiatrist to be chiefly manifested by improved communication, and speaking more audibly instead of mumbling.

Patient IV-C was considered by both raters to be slightly improved, but *Patient IV-E* was definitely improved and was continuing to improve following the experiment. It may be significant that that patient showing the greatest post-experimental improvement was also the only patient who objected to the experiment. Approximately three months following the experiment this patient was released from the hospital and placed in a foster home on trial visit status.

Conclusions

An evaluation was attempted of the effects of isolation and isolation with continuous verbal stimulation on selected, paired, severely psychotic, chronic schizophrenics. Because of the difficulties in selecting, evaluating, and maintaining the proper experimental situation only eight patients were utilized. The results with this limited number cannot be considered conclusive. With possibly one exception, no remarkable improvement resulted in any of the patients. The one patient whose improvement appeared related to the experiment was notably not the extremely chronic, regressed type.

The following incidental facts and impressions from the experiment should be noted:

A. It was anticipated that patients would, in some way, show resentment or objection to the experiment but such feelings were expressed by only one patient.

B. On the hypothesis that uncomfortable situations may stimulate change, a lack of

more positive results may simply indicate that the situation may not have been at all disturbing, and possibly even comforting, to a majority of the patients involved.

C. If a majority of the patients were not discomforted by the situation this may simply imply that the long-standing chronic schizophrenic can better dissociate himself from any presenting environment.

D. Seclusion, regarded as a punishment or means of discouraging aggressive behavior should be reevaluated as applied to the more regressed, chronic, schizophrenic patient.

E. Any one considering similar experimental work should note carefully the description of the physical arrangement of this experiment. Using a minimum of equipment and utilizing typical isolation rooms, a very satisfactory arrangement was created where the patient received a minimum of outside stimuli other than the verbal stimulation.

F. If the experiment as presented were to be repeated, it is probable that positive results would be obtained by utilizing less regressed schizophrenic patients.

G. It was agreed that an additional simple means of evaluation might have been utilized if the patients, through verbal stimulation, had been given more precise instructions for later behavior. Follow-up observer could then check to see if such specific behavior was carried out.

The foregoing study was made at the Veterans Administration Hospital, Salt Lake City, Utah, with cooperation of Jane Enniss, R.N., psychiatric nurse, and other personnel who participated in the rating of the MACC Behavioral Adjustment Scale. Bibliographical references prepared by J. J. Fishman, M.A., Research Assistant.

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Effect of Nonconvulsive Electrostimulation Upon Some Side Effects of ECT

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The use of electricity in the treatment of emotional disorders has an ancient history, but it was not until Cerletti and Bini published their results in 1939 that electroconvulsive therapy (ECT) received the attention of modern psychiatry. While very effective in certain illnesses, the treatment has definite drawbacks, among which are the psychic side effects of confusion, memory loss, and fear of treatment. Of the numerous modifications of treatment technique attempting to avoid these side effects, nonconvulsive electrostimulation (ESnc) is one of the more prominent. This study was carried out to investigate the effect of ESnc upon the major psychic side effects of ECT.

ESnc was first introduced in 1939 by Berkwitz,[1] who hoped not only to avoid the side effects of ECT but to discover a more effective treatment in general. The following years saw a number of clinical papers advocating its use either alone or combined with psychotherapy in paranoid schizophrenia, certain depressions, neurotic anxiety states, alcoholism, and many other emotional illnesses. In general, these reports did not claim that ESnc should replace ECT, but rather that it was effective in disorders in which ECT was of less use. Special claims were made for its efficacy in reducing tension and anxiety in almost any illness. The number and enthusiasm of these articles overshadowed the few reports stating that ESnc was either ineffective or harmful.

New claims for ESnc were made in 1949 when Alexander[2] introduced the concept of "countershock." Alexander felt that not only did ESnc, when given alone, decrease anxiety without producing confusion, but that if it were given after ECT, the side effects of ECT were eliminated. Specifically, ESnc given immediately after ECT was claimed to relieve the respiratory and circulatory disturbances of ECT and to prevent or greatly decrease post-shock inertia, memory loss, confusion and anxiety. Not only was general anxiety said to be diminished, but the dread of ECT which frequently occurs was stated to be much less when ESnc was used. Alexander's work was followed by many clinical papers confirming the value of "countershock"[3-6] with a few papers dissenting.[7,8]

Unfortunately, the overwhelming majority of reports on ESnc have been clinical rather than experimental and thus subject to all the possible errors inherent in clinical reports, especially when the phenomenon being described is a new treatment in psychiatry. It is interesting that the two studies which have utilized a good experimental design both conclude that ESnc is without effect. Montagu and Davies,[9] in a well controlled study, compared the effects of ESnc on 50 patients suffering from anxiety states with a control group following the same treatment routine but not receiving ESnc. No difference was found between the two groups. Hargrove, Bennett, and Ford[10] treated a total of 120 patients for anxiety and depression with ESnc alone, with psychotherapy alone, and with ESnc plus psychotherapy. Patients receiving psychotherapy alone did significantly better than those receiving psychotherapy plus ESnc. The authors concluded that ESnc did not decrease anxiety. Unfortunately, since both the treating and the assessing physicians knew which treatment each patient received, unconscious bias cannot be excluded. No other controlled studies of ESnc have been found in the literature.

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Method

1. *Experimental Design.* All patients at the Institute of the Pennsylvania Hospital scheduled for ECT during a one year period were included in the study with the exception of those with organic brain disease, those who had received previous ECT within the past six months, and those with chronic illnesses receiving maintenance ECT. These criteria were met by 67 patients who were divided randomly into two groups. Odd numbered patients (35) were treated with ECT alone, even numbered (32) with ECT followed by ESnc. The similarity of the two groups is shown by Table I. The groups did not differ significantly in age, sex, education, diagnosis, duration of symptoms before hospitalization, or duration of previous illnesses. All patients were rated for intellectual impairment, memory loss, anxiety fear of treatment, and improvement before and after six treatments.

2. *Technique of Treatment with ESnc.* Since no single technique of administering ESnc is universally accepted, we sent a questionnaire to 17 psychiatrists who had published reports of their experience with ESnc. The questionnaire asked for the side effects of ECT which were alleviated by this combination and for their opinion of the technique they used in combined ECT and ESnc. To our surprise, 11 of the 17 did not feel that ESnc had any effect on post-ECT symptoms, although five of these used ESnc for other therapeutic reasons (e.g. treatment of paranoid schizophrenia). Six respondents did feel that "countershock" was effective, and the following technique was adopted from their replies. It is almost identical with the procedure described by Alexander.[3]

TABLE I

	ECT	ECT+ ESnc	t
Age	50.5	51.8	.30
Education (years)	11.8	11.6	.09
Duration of symptoms before hospitalization (mo.)	8.2	11.8	.63
Duration of all previous illnesses (mo.)	15.1	8.6	.63
Total treatments received	12.2	11.9	.17
Chi square was insignificant for the following data:			
Sex:			
Male	20	19	
Female	15	13	
Diagnosis:			
Involutional Psychotic Reaction	17	16	
Manic-depressive Reaction	3	6	
Schizophrenic Reaction, Paranoid Type	5	5	
Other	8	5	

ECT GROUP: Treatments were given three times weekly. On treatment days patients ate no breakfast. A half-hour before treatment they received 1/50 gr. atropine sulfate intramuscularly, and were taken by a floor nurse to an individual room in the treatment section. Shortly after their arrival there, 150 mg. Sodium Pentothal was injected intravenously, followed immediately by 10 to 40 mg. succinylcholine. Within 30 to 60 seconds after the injection, depending upon the amount of succinylcholine used, electrodes were placed in the bitemporal position and maximal current (over 20 milliamperes) was administered using fast modulation and position #5. A convulsion was produced within 15 seconds in all patients. Oxygen was given through a rubber face mask and breathing bag immediately after the current was stopped. Patients with cardiovascular disorders were also oxygenated for two minutes prior to treatment.

ESNC GROUPS These patients received exactly the same treatment except that instead of stopping the current after the 15 seconds of maximal stimulation, amperage was reduced to 5 milliamperes and current position was changed from 5 to 1. Modulation remained fast. ESnc was continued for 3 minutes and 45 seconds. In a few patients it was necessary to reduce the amperage to permit spontaneous breathing but the current was never lowered below 3 milliamperes. Oxygenation was continued until patients were breathing freely.

The Reiter RC47D Electrostimulator, a machine delivering unidirectional pulsating current, was used for all treatments. In view of the claims that ECT with unidirectional current produces less memory loss and confusion than AC current, we considered

using an AC machine in the study to produce the convulsion and then switching to the RC47D for stimulation. However, this procedure proved awkward and the RC47D was used for both ECT and ESnc treatment. Subsequent evaluation indicated definite occurrence of confusion and memory loss with the RC47D, making the initial use of the AC machine unnecessary.

3. *Evaluation:* Intellectual impairment, memory loss, fear of ECT, anxiety, and general improvement were selected for evaluation. Specific evaluating techniques are described in the Appendix. Several other purported effects of ESnc, such as lessening of post-ECT psychomotor retardation, were adjudged minor and were not evaluated.

Each patient was seen by four different evaluators: a psychiatrist, a psychologist, the resident psychiatrist caring for the patient, and a nurse in daily contact with the patient. Evaluators were instructed in the use of the rating scales before the study began. Patients were evaluated the day before the first treatment and the morning after the sixth. To prevent bias on the part of the evaluators or special treatment of either group by the attending personnel, it was necessary to keep the identity of the groups secret. To this end, only the physician supervising the treatment (G.J.) and the nursing team in the ECT unit knew to which treatment group each patient belonged. These nurses were not involved in any other patient care. Periodic checks revealed that the initial curiosity about the study diminished rapidly and the evaluations were looked upon as part of the hospital routine.

Rating scales and psychological tests which had been checked for reliability and validity were used wherever possible. Since previous claims for ESnc were based on clinical observation, clinical evaluation was also a necessity. Chart A illustrates the type of checklist used. Variables were first defined and then illustrated by a paragraph describing a typical patient for each rating category. Evaluators were asked to use the descriptive paragraphs as an aid, but to let their clinical judgment be their final guide. We hoped in this way to establish a common basis for judgments to be made by several different people. Both residents and the evaluating psychiatrist (S.E.P.) used this type of checklist. In addition, the psychiatrist used a structured interview with each patient so that uniform data could be obtained and used as a basis for the ratings. Thus, although the ratings were clinical, a degree of objectivity was injected.

CHART A

These ratings form an important part of a research project. *Please be careful:* Base your ratings on your observations of the patient for the past week on days after ECT (not on ECT days). We are interested in your clinical judgment. Use the descriptions as a guide.

1. *Confusion* is seen in the organic mental syndrome which frequently develops during ECT. It is characterized by:
   - A. Memory loss.
   - B. Hesitation and slowness in thinking.
   - C. Disorientation.
   - D. Bewilderment.
   - E. Lack of comprehension.

Please rate your patient:

1. No confusion.
2. Mild confusion. (This patient shows slight memory loss or mild hesitation. He may have some trouble finding his own room, but eventually can do so unaided. He may miss the date by a day or two.)
3. Moderate confusion. (This patient has greater trouble remembering, and some disorientation. He may have to be helped to find his room, but accepts it as his once led there. He may temporarily misidentify nurses and patients, but recognizes them when corrected.)
4. Severe confusion. (This patient is quite disoriented. He forgets even the most familiar things. He cannot find his own room and misidentifies many people in his environment.)

Results

The differences between the scores before and after six treatments were determined for each test. The mean differences for the experimental and control groups were tested for significance using the Student t test. Where no pretreatment evaluation was done (as with memory loss), the mean of the post-treatment scores was compared. In certain ratings, notably the clinical evaluations, it was not known whether the classifying variable increased arithmetically, geometrically, or in some other manner. That is, the difference between a rating of 1 and 2 was not known to be the same as the difference between 2 and 3, 3 and 4, and so on. Since we were not willing to make any assumption as to how these differences varied,

the Student *t* test was not strictly applicable. In these cases a contingency table making use of the chi-square distribution was used. Non-parametric techniques were used to uncover any tendency toward an effect of ESnc which might have appeared in a group of tests but did not show up significantly in any single test.

Results are presented in Tables II through VI. The group showing less intellectual impairment, memory loss, anxiety, fear of treatment, and greater improvement is underlined for each test. With a sample of this size, *t* must be at least 2.000 for significance at the .05 level of probability. This occurred only in the rating of anxiety by the resident, where *t* equals 2.067. Since probability alone accounts for one significant result at the .05 level occurring in any 20 tests, and since chi-square for this test is not significant, we consider this to be non-significant. Neither the Student *t* test, chi-square, nor the non-parametric tests showed any significant difference between the two groups.

TABLE II

Confusion

Psychological Tests: Wechsler Memory Scale	ECT	ECT+ ESnc	t
Color Naming			
Psychiatrist	—2.23	—2.13	.47
Total Row Score	11.96	*10.26*	.49
Subtests:			
Information	1.23	*1.11*	.15
Orientation	*1.06*	1.42	.92
Memory	1.44	*1.04*	.42
Digits Backward	1.80	*.55*	1.66
Digits Forward	— *.64*	.14	1.36
Visualization	— .20	— *.46*	.20
Mental	*1.59*	1.69	.11
Learning	7.30	*5.93*	1.08
Digit Symbol	*4.35*	10.63	1.83
Word Naming	22.43	*17.00*	1.08
Words	*1.57*	2.96	.82
Color	*2.20*	5.60	.72
Words (new test)	—*6.48*	—5.00	.29
Colors (new test)	—*2.25*	—1.87	.28
Clinical Evaluation			
Colors (new test)	—*2.25*	—1.81	.28
Psychiatrist	—2.23	—*2.13*	.47
Residents	—1.94	—*1.63*	.42

TABLE III

Memory

	ECT	ECT+ ESnc	t
Present Memory	11.90	*13.13*	.78
Past Memory	16.25	*16.50*	.31
Total	27.78	*29.63*	.67

TABLE IV

Anxiety

	ECT	ECT+ ESnc	t
Psychological Tests			
IPAT: raw score	6.10	*8.43*	.46
Clinical Evaluation			
Psychiatrist	1.18	1.09	.25
Residents	.96	1.71	2.067*

*Significant at the .05 level.

Discussion

When a study yields results differing from previous reports, sources of error should be sought. One possibility always present in any study, and especially one where evaluation is so important, is the existence of bias. We feel that the precautions taken here minimize this as factor. Patients were assigned to groups randomly and neither the evaluators nor other hospital personnel knew which treatment patients were receiving.

Another important question concerns the reliability and validity of the evaluation techniques used. The evaluation of psychic change is difficult. Ratings can be made *ad infinitum;* if they do not measure the variable being studied, or if they fluctuate from one evaluator, to another, they are of little use. The reliability and validity of the eval-

TABLE V

Fear of Treatment

	ECT	ECT+ ESnc	t
Clinical Evaluation			
Psychiatrist	1.11	*1.23*	.32
Residents	*.75*	.26	1.10
Nurses	*2.77*	2.55	1.10

TABLE VI

Improvement

	ECT	ECT+ ESnc	t
Psychiatrist			
Malamud-Sands	15.70	*16.15*	.11
Clinical	*2.69*	2.78	.42
Resident			
Malamud-Sands	12.79	*19.78*	1.71
Clinical	*2.79*	2.81	.14
Nurses			
Shatin Scale	1.71	*2.15*	.33

uation techniques used must therefore be examined. In this study, three techniques of evaluation were employed: psychological tests, rating scales and clinical evaluations. The psychological tests and rating scales used in this study had been previously tested for reliability and validity. While by their very nature clinical evaluations are subjective, an attempt was made to objectify them by careful description of each variable involved using both definition and clinical illustrations; in addition, interviews were structured.

As is evident from the experimental design, the null hypothesis in this study is that ESnc has no effect on the side effects of ECT. From the data gathered we are unable to reject this hypothesis. Being unable to reject the null hypothesis, of course, is not the same as confirming it. The size of our sample is not large enough to state unequivocally that ESnc is ineffective, and it might be argued that with a larger sample the difference between the two groups would become significant. In view of the small values of t and the non-significant result with non-parametric testing, we feel that this is not so. Moreover, even if a much more extensive study should reveal an effect of ECnc, this must be of such small magnitude as to be clinically negligible.

An extensive theory concerning the relationship of anxiety and depression has been advanced by Alexander[2,4] and supported by others.[11,12] In essence, the theory asserts that anxiety is the reciprocal of depression both psychologically and neurophysiologically. Attempting to present a unified approach to somatic treatment and psychotherapy on a neurophysiological level, Alexander bases his theory essentially on the clinical observation that "depression can be converted into anxiety by the use of convulsive electroshock and reversed back into depression by the use of non-convulsive electrostimulation."[4] If this observation were true, we would expect that the patients in our study receiving ESnc would have less anxiety and more depression than those receiving ECT alone. In actuality this did not occur. Patients in both groups were markedly *less* anxious after six treatments, suggesting that ECT diminishes rather than increases anxiety in depressed patients. These results do not support the theory noted above; a reciprocal relationship between anxiety and depression remains to be proven.

The effect of ESnc itself upon anxiety could less clearly be determined from this study, as patients were not given ESnc alone. Nevertheless, anxiety as rated by several different methods was the same whether patients received ESnc or not. This is in keeping with other more specific studies that have indicated ESnc has no observable effect upon anxiety.[9,10]

We would be remiss were we not to point out that once again an experimental study using controls and strict technique has disagreed with a host of clinical reports enthusiastically supporting a psychiatric therapy. Unanimity of clinical observation is no substitute for careful and controlled investigation, especially when a new treatment technique is being advanced.

Summary

An experimental group of 32 patients were treated with electroconvulsive therapy followed by nonconvulsive electrostimulation. A control group of 35 patients received only electroconvulsive therapy. Patients were evaluated before and after six treatments for intellectual impairment, memory loss, anxiety, fear of treatment, and general improvement. No significant differences between the control and experimental groups were found in any of these variables. The authors conclude that nonconvulsive electrostimulation has no effect on the psychic side effects of electroconvulsive treatment.

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APPENDIX

Methods of Evaluation:

Confusion after ECT is characterized by impaired orientation, intellectual functioning, abstraction ability, and judgment. It is present immediately after each treatment and persists for about an hour. As the course of treatment continues, the period of confusion increases, and finally includes the entire interval between treatments. In this study, confusion was rated in three ways: 1. clinical evaluation by the resident, 2. clinical evaluation by the psychiatrist, 3. psychological testing. In reviewing the literature on psychological test results after ECT, we quickly discover that there was no agreement as to which tests best gave information about this intellectual impairment. Accordingly, a number of tests were used, encompassing most of those described by others as sensitive to impairment from ECT. These were:

a. The Wechsler Memory Scale:
   1. Personal and current information.
   2. Orientation.
   3. Mental Control.
   4. Logical Memory.
   5. Digit Span.
   6. Visual Reproduction.
   7. Associate Learning.

b. The Wechsler Adult Intelligence Scale:
   1. Digit Symbol.

c. Word Naming: In this test, modified from Michael,[13] subjects were asked to close their eyes (to eliminate visual clues) and name as many words as possible in a two minute period. This test proved especially useful in picking up the slowing of thought so noticeable in confusion from ECT.

d. Color Naming: Although not previously reported upon in ECT studies, this test has proven sensitive to organic impairment from other causes. Patients were requested to read the names of colors printed in black and to name squares of colors. They were then given a list of color names printed in varying colors and requested to read the word and to name the color in which each word was printed. The time, number of errors, and number of corrections were recorded for each performance

Tests a and b were given in two forms to avoid practice effects.

Memory Loss after ECT is often of a peculiar spotty nature which differs from the general confusion mentioned above. Janis[14] in an extensive study of this type of memory loss described an evaluation technique, which was modified for use in this study. In his initial interview, the psychiatric evaluator elicited five specific items of present memory (onset of illness, hospitalization, etc.) and five of past memory (birthdays, etc.). Each item consisted of a specific incident, with as many details as the patient could recall. In the second interview, patients were again asked for the same information. A score of 2 was given for each item recalled in toto, 1 if the incident was recalled but details forgotten, and 0 if the incident was entirely forgotten. A score of 10 for present and 10 for past memory was thus possible.

Fear of treatment is a distressingly frequent side effect of ECT. Several studies indicate that individual predisposition to phobic reactions played a large role in its appearance, yet the consistency of the fear would suggest that other factors were operating. The confusion following treatment with its accompanying sense of unreality and unfamiliarity may be one such factor, as described by Gallinek.[2] If ESnc relieves confusion, it may also, then, relieve part of the fear of future treatment. Such an effect is described by Sweel and others. In this study, fear of treatment was evaluated clinically by a psychiatrist and a resident. Since it appeared that this fear would emerge most clearly on the way to treatment, patients were evaluated in addition by the nurse who accompanied them to their first and seventh treatment, using both their behavior and verbalizations as indicators of fear.

Anxiety: One of the major claims made for ESnc is that it reduced anxiety, in contrast to ECT, which is said to increase it. Although aware of the difficulties inherent in evaluations of anxiety, we felt that the attempt should be made. Patients were evaluated clinically by residents and the evaluating psychiatrist. Anxiety was defined as the reportable experience of fear or apprehension unrelatable to

external threat. A structured interview was used to explore three major areas in which anxiety may be manifested: psychological symptoms reported by the patient (jitteriness, tension, etc.), physiological changes reported by the patient (rapid respiration, tachycardia, etc.) and behavioral and physiological manifestations observed by the evaluator (pacing, perspiration, etc.) In both ratings, *anxiety during the interview* was evaluated.

Anxiety was also evaluated by psychological testing, using the IPAT (Institute for Personality and Ability Testing) anxiety scale. This scale, a pencil and paper test consisting of forty questions, is the product of extensive research by Cattell.

Improvement was evaluated clinically by the evaluating psychiatrist and the resident using the following categories:

1. Without symptoms and ready to return home and to work;
2. Some symptoms remaining but patient able to return home;
3. Improved but many symptoms remaining and patient unable to return home;
4. No improvement.

In addition, the Malamud-Sands rating scale[16] was used by both residents and the psychiatrist. A nursing evaluation was also obtained, using a short form of the Shatin scale.[17]

Methohexital (Brevital): A New Anesthetic for Electroconvulsive Therapy

FRANK J. AYD, JR., M.D.

Brevital sodium (methohexital sodium) is a new oxygen barbiturate for intravenous anesthesia which is more potent and has a shorter duration of effect than other barbiturate anesthetics. Animal and human studies of the drug have shown that it is particularly suited for those clinical situations where rapid induction of and quick recovery from the anesthetized state without residual sedation are desirable. To the psychiatrist who administers electroconvulsive treatment (ECT) in the office or hospital it is most advantageous to have such an ultra-short-acting anesthetic. Consequently, a study of Brevital as an anesthetic for ECT was undertaken to determine the dosage, side effects, and efficacy of this compound and to compare it with other barbiturate anesthetics used for the same purpose. The results of this investigation are the basis of this report.

Clinical Material

Over a two-year period 1,000 injections of Brevital were given as the anesthetic for ECT for 156 office and hospitalized patients between ages 18 and 76. Although the majority were physically sound, there were in this group patients with asthma, diabetes, hyperthyroidism, hypotension, hypertension, generalized and cerebral arteriosclerosis, and various cardiac disorders. Some were obese; others underweight. As a part of their total medical-psychiatric care, these people were taking drugs such as insulin or digitalis for whatever medical condition they had, plus psychopharmaceuticals for their psychiatric disorders, such as phenothiazines, amine oxidase inhibitors or non-amine oxidase inhibitor antidepressants.

Technique of Therapy

Immediately prior to the shock treatment a 1 per cent solution of Brevital was injected intravenously. The amount of this agent needed to induce adequate anesthesia for electroshock depended primarily upon the intensity of the patient's pretreatment level of anxiety. The dosage was determined by the response of the patient as recognized by the common signs related to depth of anesthesia. For most patients 6 cc. of a 1 per cent solution was sufficient; the range being 5 to 10 cc.

After a few trials with this drug, it became apparent that Brevital could be injected rapidly, so that approximately 900 individual doses were given each within 5 to 10 seconds. This produced a smooth, rapid light anesthesia with no alarming respiratory or cardiovascular reactions. ECT was then administered, using either standard 60

Brevital was supplied by Eli Lilly and Company, Indianapolis, Indiana.

From Franklin Square Hospital, Baltimore, Md.

cycle alternating sine-wave current or unidirectional current.

Discussion

Pretreatment with Brevital had no apparent effect on the character of the electrically induced convulsion. There was no alteration of the convulsive threshold, nor were there any atypical seizures. There was a shortening of the mean duration of the seizure when compared with treatment without barbiturate anesthesia. The mean duration of seizure with Brevital was 30.2 seconds; without barbiturate anesthesia, it was 39.1 seconds. This shortening of the mean duration of the seizure did not prolong the period of post-seizure apnea.

Patients recovered from combined Brevital-ECT with remarkable speed and clarity. There was no "hangover" effect or clouding of the sensorium, aside from that which could be attributed to the shock treatment alone. This prompt recovery was noted by the therapist, the nurses, the patient, and the patients' relatives, who customarily enter the treatment room as soon as the shock treatment is over. This was particularly impressive to those patients (34) who had had prior courses of ECT in which other barbiturates were used for pre-treatment anesthesia. In contrast to patients treated with ECT alone or ECT combined with other barbiturates, patients given combined Brevital-ECT were oriented and mentally clear within 5 to 10 minutes. They were able to sit up and walk unassisted as well as to carry on conversation. All patients were able to leave the office within 20 to 30 minutes. Some were even able to drive home. Those patients who had been treated with other barbiturate anesthetics commented on the absence of any taste or odor associated with Brevital. These observations contrast markedly with the experience with other barbiturate-electroconvulsive treatments, with the exception of those conducted with Neraval.[1] The longer-acting barbiturates frequently make a patient "cloudy" and unsteady for at least a half-hour and rarely is a patient able to leave the office unassisted within 45 minutes after a treatment.

It is obvious that the anesthetic action of Brevital was not potentiated by phenothiazine derivatives, amine oxidase inhibitors or other antidepressant drugs such as imipramine or amitriptyline which the patients were taking simultaneously with ECT. Furthermore, no incompatibility with succinylcholine or any of the drugs the patients were taking for their medical condition was observed. Actually, Brevital apparently has some muscle relaxant effect, since when used in conjunction with succinylcholine, less of this latter drug was needed than when Brevital was omitted.

Brevital is a safe drug as evidenced by the absence of any serious complications in this series of 1,000 injections. Patients with the physical conditions noted above withstood the combined treatment well. Most patients had no side reactions. Slight skeletal muscle tremors of the face, hands, or feet occurred in 16 patients each time they received Brevital. These tremors lasted for only a few moments and did not interfere with the treatment. Hiccups or coughs were noted in 10 patients with the first injection of Brevital. This was avoided subsequently by more rapid injection of this anesthetic. There was no evidence of other side effects which intravenous barbiturates have been known to produce, such as laryngospasm, singultus, suppression of respiration, pulmonary edema, excitement, venous thrombosis, thrombophlebitis, sterile abscesses from paravenous injection and allergic dermatitis.

Comparison with Other Barbiturate Anesthetics

The results of a clinical comparison between ECT without barbiturate anesthesia and those administered with Brevital, Neraval, Amytal, Seconal, Pentothal and Surital are summarized in Table I. This comparison shows that in anesthetic doses all barbiturates are capable of shortening the duration of electrically induced convulsions. However, the duration of seizure is significantly longer with Brevital and Neraval than with any other barbiturate. In practice, this is inconsequential. Most important is the fact that recovery time with Brevital and with

Neraval is significantly less than with any of the other barbiturates considered. The average recovery time with Brevital was 1 minute and 38 seconds less than with Neraval and was only 30 seconds longer than the average recovery time from ECT administered without barbiturates.

TABLE I

Comparison of Brevital with Other Barbiturates Used for ECT

BARBITURATE	Treatments	Dosage	Mean Duration of Seizure in Seconds	Mean Recovery Time in Minutes
Brevital	1000	6 cc. 1%	30.2	5.9
Neraval	516	10 cc. 5%	29.07	7.53
Amytal	100	5 cc. 5%	24.5*	30.0*
Seconal	100	5 cc. 5%	25.3*	18.6*
Pentothal	100	5 cc. 5%	26.2*	15.7*
Surital	100	5 cc. 5%	25.8*	15.3*
No Barbiturate	100	———	39.1*	5.4

*Significantly different from the corresponding data on Brevital at or beyond the 0.02 level, established by Chi-square corrected for continuity.

Comment

This investigation demonstrates that Brevital is distinguished from other barbiturate anesthetics by its greater potency, shorter duration of effect and by the promptness with which patients recover from its action. It is definitely more potent than and has a duration of effect about one-half as long as most other barbiturate anesthetics. This compound has no sulfur taste or odor and does not complicate treatment by producing undesirable side effects. It is stable in solution and may safely be left at room temperature for as long as six weeks. As a pretreatment anesthetic for ECT, Brevital is comparable to Neraval in speed of action and freedom from serious side effects. However, patients recover from this anesthetic more rapidly than they do from thiobarbiturates used for the same purpose.

This study also confirms the findings of Friedman.[2] He used Brevital as the intravenous anesthetic agent for electroconvulsive, nonconvulsive, and electrocoma therapies in 696 trials involving 72 patients. On the basis of this experience he reported on the ultrashort action of Brevital, its safety and its favorable comparison with thiobarbiturate anesthetics.

Summary

Over a two-year period 1,000 intravenous injections of Brevital, a new oxygen barbiturate, were given to 156 patients as the pretreatment anesthetic for electroconvulsive therapy. The objectives of this investigation were to determine the dosage, side effects, and efficacy of Brevital and to compare it with other barbiturate anesthetics used for ECT. The most commonly employed anesthetic dose was 6 cc. of a 1 per cent solution of Brevital. This produced a rapid induction of anesthesia without serious side effects. This compound did not alter the convulsive threshold or the character of the electrically induced seizure. By measuring the mean duration of the seizure in seconds and the mean recovery time in minutes for Brevital and other barbiturate anesthetics, it was found that recovery from this drug was almost as rapid as when ECT is administered without anesthesia. Additional clinical observations are reported which show that Brevital is an excellent anesthetic for ECT.

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The Psychiatric Team Geared to Intensive Treatment

LORANT FORIZS, M.D.

Conceptual models created in the various stages of development of the sciences of human behavior represent the ideas or general ideology of the day, and change with the course of history. This is probably most apparent in the case of the study of deviations from normal behavior, that is, in the field of psychiatry.

Views on mental illness and its treatment have shown a wide variety of concepts and models; the pendulum swung from "being possessed by spirits" to everything being a consequence of liver function. Melancholia, choleric temperament, etc., already show the same dichotomy that prevails today between the psychogeneticists and the somatists. Excessive use of laxatives and cupping alternated with burning at the stakes. Fasting, dunking, snake pit, and chains alternated with "moral treatment," the precursor of psychotherapy. Even since the word psychiatry was coined, a great deal of change has taken place in psychiatric thinking. A number of our earlier concepts that were heavily weighted in the direction of biological-biochemical because of medicine's traditional orientation, have undergone changes.

Today with greater knowledge of human behavior, we are inclined to speak in terms of various levels of integration. Such levels of integration are biological, biochemical, physiological, psychological, social and cultural, to name the most important ones. This so-called multi-disciplinary approach presupposes various sets of dynamics operating separately from all levels as well as undergoing constant interaction between these levels. In the treatment of behavioral abnormalities it is our task to seek out these various levels and aim our therapy at them, both through direct manipulation of the dynamics on each of the levels and by taking into account the reciprocal relationships of those dynamics as they affect each other. Beside the earlier pharmacological, physiological and psychological treatments in psychiatry, we are about to add the new dimension of the dynamics of social and cultural forces. It is at this point that the concept of therapeutic community is being introduced.

Historically speaking, like most of the approaches of the healing sciences and arts, empiricism was the teacher. Analysis of large state hospitals proved that they represent a type of social organization, a community. Unfortunately one had to discover that in many ways this was an "untherapeutic" community with its back wards, poorly functioning communications, rather rigid and in many ways destructive, hierarchical organization, etc. With this discovery, the pendulum started to swing and both here and abroad, enthusiasts began expecting miracles from the "open ward policy." They felt that whereas the old-fashioned state hospital led the patient into further deterioration, regression, withdrawal and to a state of homeostasis which allowed the patient to survive within the hospital with some comfort, the open ward policy would provide a universal panacea. The large closed hospital preserved a *status quo* for the patient at the price of a tremendous drain on the feeling of self-worth. The open ward was supposed to increase the patient's feeling of self-worth. It did this, except in some cases such amount of ego inflation resulted as to allow the patient to follow a destructive course, of either literally self-destruction or the social equivalents of same.

In trying to go systematically about our understanding of the therapeutic community, some of the basic principles ought to be shifted out. In general the goals must be twofold: (a) to strive toward reduction of what is untherapeutic in this community; (b) to marshal all knowledge that would be instrumental in increasing the therapeutic influences within the hospital community.

Various untherapeutic factors can be listed. Probably the first and foremost of

From Anclote Manor, Tarpon Springs, Florida.

these is in some way connected with the actual goals of the mental hospital community. An honest analysis of these would disclose that segregation of the unusual behaving individual, because of his anti-social tendencies, has been the primary goal. Society, in order to protect itself, designates a complex system of buildings, laws, organizations to protect itself from the anti-social elements of the sick. In this so-called custodial situation the primary and most obvious goal is to reduce the anxiety of society by rejecting the sick, expelling this individual, in order to hold him in isolation. For financial reasons, these units will be large and cumbersome, in their physical layout, in their group organization, and in terms of staff and patient groups. While carrying out this mandate from society the staff very obviously has its own anxieties about making the isolation as secure as possible. When this sense of security is threatened within the staff, group anxiety arises against which the staff will defend itself by tightening up the security provisions. This very obviously will take precedence against the other goal, to strive for therapeutic gains within the patient. It is primarily in the service of the first goal that rigid hierarchical organization is established with necessarily rigid rules and a value system far different from the value system of society at large. Communications within this system will, of course, be sharply tuned to the primary goal, and much of the communication material that would be in the service of the therapeutic gain will become inaccurate and perhaps not more than background noise instead of meaningful messages. It remains a fact, however, that even under those circumstances a substantial number of patients get well. This, to a large extent, is no doubt due to the application of physical-chemical treatment methods which at least temporarily and at other times rather permanently ameliorate the condition of the patient. This happens in spite of the untherapeutic influence that ultimately leads to a reduction in self-esteem and self-image.

What is to be done to make this community more therapeutic could actually be described as a basically negative approach which is, nevertheless, necessary. In order to eliminate the untherapeutic environment, one would have to revise the goals, setting up a new hierarchy of goals where there would be a place for those of society, and those of the staff in the interest of preserving their own comfort, but where the primary goal would be the improvement of the patient, i.e., the therapeutic gain. A further step would be to reduce the size of the large and cumbersome units. This in itself could entail a reduction of the rigidity as far as the organization hierarchical structure is concerned. It most probably also would lead to improving the communications potential of the staff and the patients alike.

The second group of actions to take as mentioned earlier, consists of positive actions that are likely to increase the therapeutic influences within the community.

In the past there has been a dichotomy in theories in this field as an outgrowth of psychotherapeutically, and more specifically psychoanalytically oriented thinking. Actually the first analytically oriented hospital was set up on the basis of providing carefully measured dosages of frustration as a stimulus toward growth. At about the same time other therapeutic communities were established on the basis that an abundance of gratifications be furnished so that with that influx of gratification, the patient's ego would be rendered capable of resolving more complicated problems on the following steps of the psychosexual development. I believe that today this dichotomy has been resolved in the eyes of most. It is recognized that in various diagnostic categories, and at various stages of the treatment, both the abundance of gratification and the carefully measured out dosages of frustration can become necessary. Instead of summary solutions and dogmatic philosophies, a more refined, more accurately organized method specifically geared to the needs of the moment will be utilized.

From my earlier description of the old-fashioned mental hospital it has probably become obvious that there was a sharp demarcation line drawn between the patients

and the staff. It was, of course, still one community with the patients occupying the lowest seat in the hierarchy. The political situation within that group can be described as one in which all three branches of government—the legislative, the executive and the judicial are totally in the hands of the staff group and the patient group does not participate in any of these functions. The patient is being told that all the rules are made and carried out for his benefit, but he has nothing to do with them except being the recipient of such governmental action. The situation so described as anything but highly rigid and hierarchic. Political history and present day observations on large or small groups indicate that in the long run, any such organization will display a high degree of instability, whether we are talking about a nation, a pack of cub scouts, a manufacturing company or the crew of a submarine. In the case of disintegrating emergencies, and especially over short periods of time, such autocratic political systems can be very useful, and even may be the only useful structures. But in the long run, especially where the primary goal is not the organization's total output, but the gain of the individual within it, a diffusion of authority and loosening up of the autocratic and hierarchical structures seem to bring more success. It is obvious that established either intuitively, or later in a more planned form, these basic principles were responsible patients in hospital communities that d for the more satisfactory progress made by patients in hospital communities that adopted the open ward policy.

An organization such as this may be organized in formal or in informal ways. We all know that governmental functions can be spelled out, definied and put down in the form of agreement or law. Actually, however, a great deal more will happen in terms of organization because of the informal structure and the unwritten laws and an officially defined functions present in all groups. We all know what a "bully" can do to the life of a group and the lives of the individuals in the group, what the role of a weak and submissive formally appointed leader means, how the "black sheep of the family" operates, what intrigues the "manipulator" carries out, what power the "clinging vine" represents, etc.

In our hospital, the therapeutic community in an organized form is being used in carefully limited ways. A very accurately measured out portion of both the legislative and the executive functions are being delegated to the patient group. None of the formal judicial functions are officially delegated.

The following diagnostic categories are presently being handled at various places within a structured therapeutic community setting. Schizophrenias of the overt type, are represented by two units of the Armed Forces (Army and the Navy) with apparently very good success. In our hospital, we do not have anything for this patient category as yet. We have, however, experience with the less regressed and less overtly psychotic schizophrenics. Many of them get into our therapeutic community after the most outstanding overt signs of their psychoses are disappearing and the patient is gradually moving into a remission, at which time more of the characterological attributes of their schizophrenia are in the foreground either in the form of what is ordinarily described as schizoid character or pseudoneurotic, pseudopsychopathic, paranoid or other similar features. The second major diagnostic category that we are getting experience with comes from the area of the character disorders, including alcohol and drug addicts. The third category are the depressives, the major portion of them involutional, with their depression gradually clearing up either after electroshock or with the help of antidepressant drugs. At this time, one could say that they are beginning to operate with their characterological defenses in a manner similar to schizophrenic group.

These patients are located in a specially designated portion of the hospital which promotes increased social interaction. They are being given the name of being a community group and have weekly, two, and a half hour long group sessions, for the discussion of everything that has its origins in their com-

munity living and so-called community projects.

The delegation of legislative and executive functions are limited to a number of rules, a circumscribed portion of freedom for such projects as outings, movies, exemptions in the form of privileges from hospital rules, etc. Most of the areas that are opened up for their governmental functions could be considered as privileges or pleasures of one kind or another. It is frankly discussed with the group at all times that these privileges are a bait to get them into those territories of life problems where important patterns can be modified through the real "here and now" of actual living within a group that has common goals. The foremost of these goals is treatment that would provide patterns which would make possible living in the outside without symptoms, with more happiness and productivity and would allow better interpersonal relationships.

One other basic principle should be emphasized before we go into the analysis of what this pattern furnishes in terms of therapeutic gains. This is the principle of the therapeutic community being utilized as a treatment method always in conjunction with other forms of therapy, and most importantly, in conjunction with analytically oriented individual psychotherapy.

In our observation, two kinds of learning processes go hand in hand in this situation. The one I would like to call, for lack of any better word, introjective learning. I mean at this point learning by introjecting prefabricated patterns as they are seen being utilized by others, through identification, through example and frequently by trial and error. The other learning I would liken to what the psychologists call problem solving, or learning by analytic method. Just as in the transference within the realm of "here and now," actions and reactions are taking place. This seems to be different from the near intellectualization of such forms of psychotherapy as counseling or "understanding what is going on." This process seems to complement individual psychotherapy inasmuch as characterological defenses and habitual modes of interaction are brought into the foreground and are focused upon in a form that would elude the therapist's and the patients' attention in the individual treatment situation. The resistance occurs less frequently and with lesser force and it is broken faster under the impact of group's scrutiny. It is our feeling that when used in conjunction with individual psychotherapy and other adjunctive therapies, the therapeutic community can speed up the treatment process and contribute to the depths of the change within the individual.

Little has been said so far about the judicial function other than that there is no formal delegation of it to the patient group. This is to say that the group has no authority in determining who may be a member of the group or who should be removed from it. It is equally prohibited that the group carry out any punitive function in a formally delegated way. Needless to say, the informal judicial functions of the group are in effect and relatively little is done to prevent this. Their most important punishment is rejection—and their most important reward is acceptance as a form of love. Both the technical aspects of living, the manifest processes and the feelings involved are discussed and channeled into verbal communication. Just as in individual psychotherapy, this process gradually obviates the need for action language, organ language, etc., and in this way it contributes to therapeutic gains.

It is quite obvious that in a group process such as this various forces affect that part of the group which we call the staff. This part constitutes a sub-group. When it is decided that a therapeutic community will be established it seems useful to keep in mind that the staff (A) is a group which goes through the normal developmental phase of all groups. It will be, first, dependently and hierarchically organized, seeking a group homeostasis through the means of hierarchical structure. This phase, after some months, will change into, second, a counterdependent pattern or organization where the leader is beginning to be criticized and questioned and members of the group will seek self-assertive and pseudoindependent positions. This, a little later, will be-

come third, a phase of turbulence with manifestations of active signs of rebellion and only later will it end in what can be described as gradually developing interdependent organizational pattern with mutual trust and sharing of responsibilities and cooperation.

Examples in the literature clearly indicate that a staff group that is unable to keep its uniformity of thinking because of this transition from the hierarchical to the democratic organizational pattern cannot only become helpless for the patient in the therapeutic sense, but can actually harm the patient through the development of dichotomies and bipolarities or even multipolarities.

(B) The second important thing to realize about a team in a therapeutic community is that it is a group under stress, the stress being provided by the very sick patient material whose needs, both in terms of dependency and hostility in either straight acting out or modified, as manipulative and other manifestations, are falling on the "fertile soil" of the disturbances of group growth within the team. Hence, we should not be surprised at the sometimes violent interplay of emotions among the members of the team. I would also be inclined to think that not only quarrels and resignations, or threats of resignation, but also subclinical depressions, transient psychosomatic complaints and occasionally some paranoid trends will be observed and are stress phenomena that we have to reckon with.

Not only must we count on them, but it is useful to be aware of some of the preventative and remedial processes that those in this field have found useful. They may be listed as:

(1) Let authority of science replace all other lines of authority such as the governor, the cabinet, the lay boards, administrators, etc. I would venture to say that much can be gained if the trust and confidence in the leader of the therapeutic community is sufficient on the part of his superiors to affect a complete delegation of authority to him. According to Maxwell Jones, this was necessary to form his team and be efficient.

(2) Teaching in the framework of a didactic process, preferably on the basis of case demonstrations, becomes a necessary part, especially in the formation period of a therapeutic community.

(3) Role boundaries must be redefined, as they may differ from traditional role definitions of the various disciplines in less intensive psychiatric treatment. This is a continuous process comprising constant refinements on job descriptions and taking also into account individual needs in both staff members and patients, preferably in the form of case demonstrations. Role conflicts, as already indicated, are primarily dependent on the differences between the traditional and the new roles magnifying the already existing interdisciplinary differences and compounding them with interpersonal differences, especially as they sharpen in the turbulent phase of group development.

(4) It becomes essential and mandatory that individual vulnerabilities of staff members be attended to in conferences, in group therapy of the staff, perhaps personal analysis or "individual tutoring" as Maxwell Jones calls it.

Points two, three and four rather obviously point up a sizable segment of time that must be sacrificed and poured into the development and operation of a therapeutic community. The team as a group and governing bodies above the team leader must reckon with spending something like 20 or 30 per cent of working time in this type of communication between members of the team if they want this tool of treatment to work effectively.

Relationship of Social Class to the Use of Hypnotics in Hospitalized Depressives

JAMES B. ALLISON, M.D., and J. CORNELL DEWITT, B.A.

The observation by the authors that depressed upper class patients seemed to request more medication than depressed lower class patients raised questions as to the origin of such an apparent difference in behavior. Social mobility might be responsible for this apparent difference. However, in examining the situation more closely it became apparent that factors other than social mobility could influence a patient's request for medication. Of primary importance was social class, since it might be expected that patients on the "charity" service might demand less than those people who were "paying" for their hospitalization. Other factors such as attitudes of the attending physicians, as well as the attitudes of the patients, which would be influenced by upward mobility, might also affect this particular aspect of patient behavior.

Taking hypnotics was considered the most consistently documented index of a patient's ability to tolerate his symptomatology and his expectations for relief from his milieu. Since the insomnia of affective disorders is a consistent symptom, it was considered that these depressed patients were the best subjects for this investigation. The distortion of reality is minimal and further this group tends to retain its social drives longer than people of other diagnostic categories.[1]

Method and Patient Material

A total of 83 subjects, 43 males and 40 females, with depressions were picked at random from the files of the University of Texas Medical Branch Hospitals and St. Mary's Infirmary at Galveston, Texas. Three criteria were rigidly adhered to: that the patient had no symptomatology interpretable as being consistent with schizophrenia, that the depression was of such severity as to require electric shock treatment, and that the patient had a prescription order for a hypnotic written on admission. The patients were placed in the respective social class by the use of the Hollingshead two factor index[2] taking into account the subject's occupation and education. This index was preferred over the Hollingshead three factor index which also takes into account the subject's residence. Because of the diversity of geographical location of our subjects and the lack of demographic scales, the three factor index was not applicable.

The average number of doses of hypnotics per day prior to receiving the first electric shock treatment was calculated for all subjects. This was then compared with the subject's social class, age, length of hospitalization, and the interim from admission to receiving electric shock treatment number one. In addition to this, the subject's social class was compared with the interim from admission to receiving electric shock treatment number one, and interim from receiving their last electric shock treatment to discharge. The results were then calculated by using the Mann-Whitney Statistic[3] and/or the "t" test to determine whether they were significantly different.

Results

Of the 83 subjects studied, 18 were in class II, nine males and nine females; 16 were in class III, nine males and seven females; 27 were in class IV, 15 males and 12 females; and 22 were in class V, ten males and 12 females. The mean dose of hypnotics per day prior to receiving the first electric shock treatment was 0.70 for all classes and was 1.51 for class II females, 0.75 for class II males, 0.76 for class III females, 0.72 for class III males, 0.61 for class IV females, 0.59 for class IV males, 0.40 for class V females, and 0.50 for class V males. The aver-

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age age was 46.28 years for the males and 44.11 years for the females. The average length of hospitalization was 43.75 days for all classes. The mean interim from admission to receiving electric shock treatment number one was 5.85 days for all classes with 3.9 days for classes II plus II and 7.8 days for classes IV plus V. The mean interim between receiving the first electric shock treatment to discharge was 37.5 days and from the last electric shock treatment to discharge was 6.25 days. We found the number of consultations with other medical services and the number of laboratory examinations to be the same for all classes.

It was observed that there was no significant difference when comparing the subject's social class and the length of hospitalization, interim from receiving electric shock treatment number one to discharge, and interim from receiving the last electric shock treatment to discharge. However, there was a significant difference when comparing the social class with the interim from admission to receiving electric shock treatment number one, with classes IV plus V having a greater value than classes II plus III ($p = 0.01$ for the males and $p = 0.05$ for the females).

There was no significant difference between the mean dose of hypnotics per day prior to receiving electric shock treatment number one and the subject's age, interim from admission to electric shock treatment number one, and the males' social class. There was a significant difference in this mean dose of hypnotics and the length of hospitalization ($p = 0.002$—0.001) and the females' social class ($p = 0.02$ for class II females versus class V females, $p = 0.10$ for class II females versus class IV females, and $p = 0.05$—0.02 for classes II plus III females versus classes V plus V females).

Discussion

This study was designed to determine if significant evidence could be found to correlate a patient's social class and one aspect of his hospital behavior. The most outstanding findings were that the upper class females received more hypnotics prior to electric shock treatment number one than did the lower class females and there was no significant difference in this respect among the males. We can only hypothesize as to the reasons for this apparent difference. It seems probable that the males may consider the taking of medicine a sign of weakness. They may choose as one means of asserting their masculinity an unwillingness to request medications. This attitude in part may be supported by the psychiatrist, the resident, and/or the nursing staff, especially the latter. Another possibility is that males do not have the fear of and anxiety associated with insomnia. Also, the males may not be as class conscious as females.[2]

This now brings us to a consideration of the difference between the upper and lower class females and their request for hypnotics. Again we must speculate as to the reason(s) for this difference. One consideration is that the lower class patients were not as sick as the upper class patients by virtue of the fact that the lower class patients usually had been on the waiting list for several weeks prior to their admission to the staff service. Thus upper class depressives usually were admitted in the earlier course of their illness. Another possibility was that the upper class patients were more demanding because they were "paying" for their hospitalization. In addition, the private psychiatrist may be more likely to urge his patients to take medications than would a resident. This attitude may be reinforced by the nurses' "catering" to the upper class patients. Then, too, upper class patients may have more fear of insomnia and less ability to tolerate the prospect of sleeplessness.

The finding that the longer the hospital stay, more hypnotics were required prior to receiving the first electric shock treatment, was most likely because those who were hospitalized longest were suffering from a more severe depression than those with shorter hospital stays.

The discovery that the upper class patients received their first electric shock treatment sooner than the lower class patients may be due to the fact that upper class patients were known by their private psy-

chiatrist prior to hospital admissions and were admitted especially for a course of electric shock treatment. In addition, the lower class patients were usually on the staff service and their workup was slower.

It may be assumed that all of the patients received essentially the same routine medical care since there was no significant difference in length of hospitalization, number of laboratory examinations, or number of consultations with other services.

Summary

We found that the longer the hospital stay, the more hypnotics would be required prior to receiving the first electric shock treatment; the upper class patients were started on electric shock treatment earlier after admission than were the lower class patients; the upper class females received more hypnotics than did the lower class females; and there was no significant difference in the amount of hynotics received by the males regardless of social class.

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An Unusual Central Nervous System Complication of Perphenazine

(A Case Report)

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Perphenazine (Trilafon) on a milligram for milligram basis is considered the most potent of the present phenothiazines, being first described, clinically, by Ayd.[1] Cahn and Lehmann[2] stated that the drug appeared relatively free of most side effects, except for extrapyramidal symptoms. It was soon observed that the phenothiazine drugs can also produce acute dyskinetic syndromes with spasms of the perioral, facial, neck and back musculatures, so that tetanus would be suspected. Shanon[3] coined the term, "neck-face syndrome," when the dystonia involved the musculatures of the face and neck. Further complications were also described, such as, generalized clonic convulsions, cataleptoid states, oculogyric crises, and a condition of akathisia characterized by inattention with restless feelings in the legs to severe agitation with marked hyperactivity. All these manifestations usually occur very suddenly, even with low dosage, and when the drug is discontinued the symptoms disappear within 48 hours. A review of the literature[3-10] reveals 18 cases of perphenazine toxicity showing one or more of the above stated complications.

We have observed an unusual central nervous system complication in a case of an acute perphenazine reaction.

From the Neuropsychiatric Service, Fordham Hospital, Bronx, New York.

Case Report

P.G., age 19 years, a white married female, had completed several months of psychotherapy for a pseudo-neurotic type of schizophrenia and was to be discharged in view of her marked improvement. She was two months pregnant. Her obstetrician started her, on December 1, 1959, on 4 mg. Trilafon, orally, twice daily, for nausea of pregnancy. Suddenly, during the evening of December 11th, the patient developed marked tonic spasms of the face, neck and body, with trismus. The upper and lower extremities were held in rigid extension. A physician was called who administered 2 cc. Demerol intramuscularly. An hour later the patient fell asleep, the face, the body and all extremities assuming a normal, relaxed position. The following morning, as her nausea was still present, she took 8 mg. of Trilafon. Two hours later her entire body

again went into continuous tonic spasm. The obstetrician administered 2 cc. Demerol and 1 cc. Trilafon intramuscularly. Fifteen minutes later the spasm was relieved. That evening the entire body again went into tonic spasm which lasted an hour and disappeared spontaneously. The following morning, while in the obstetrician's office, the tonic spasms of the entire body recurred. Two cc. Demerol and 1 cc. Trilafon were given intramuscularly and the spasm disappeared in 15 minutes. The following morning, December 14, 1959, the tonic spasms recurred. She was rushed to Fordham Hospital by ambulance. On admission she complained of marked pains in the abdomen and extremities, thrashed about and was markedly restless and agitated. Episodes of the tonic spasms of the face, body and extremities, lasting about 15 minutes, would occur. Physical examination was normal. The pulse rate was 100 per minute, regular, of good volume and good tension, and equal. The blood pressure was 108/72. Neurological examination revealed dilated pupils and bilateral Babinski reflexes. Otherwise, neurological status was considered normal. In order to relieve the patient of the painful spasms and to quiet her, she was given 100 mg. Thorazine intramuscularly, four hours later 2 gr. sodium phenobarbital intramuscularly, three hours later 50 mg. Sparine intramuscularly, and three hours later 2 grains sodium phenobarbital intramuscularly. Her condition appeared critical as she continued to have recurrent tonic spasms of the entire body, lasting several minutes, and then when the spasm was relieved she was markedly restless and agitated. The following morning, 24 hours after admission, she was calm; she appeared to understand questions, but would only nod yes or no. She was unable to close her mouth and it was obvious that a dislocation of the jaw was present. Her temperature was 101.8 F. No meningeal signs were elicited. 10% solution glucose was given intravenously. Achromycin, 500 mg. and 200 mg. every 8 hours, thereafter, was prescribed (patient was allergic to penicillin). By noontime the patient became comatose, which comatose condition lasted 24 hours. Urinalysis showed albumen 2+, glucose 4+, with a number of red blood cells in clumps. The white blood cell count was 27,600 per cu. mm. The red blood cell count was 3,400,000 per cu. mm. The hemoglobin content was 10.4 grams. Blood chemistry revealed the urea nitrogen of 16 mg. per cent, glucose 103 mg. per cent and carbon dioxide combining power 24 volume per cent. The blood Wasserman test was negative. The following day, December 16, the patient had recovered from her coma. She was cooperative and complained of being thirsty and hugry. There was no further evidence of spasms. The dislocation of the jaw on the left was reduced. Follow-up X-ray of the mandible showed no evidence of fracture or dislocation. X-ray of the chest showed no pulmonary consolidation or infiltration. Her husband refused consent for lumbar puncture until December 16th, at which time the cerebro-spinal fluid was clear and under an initial pressure of 150 mm. water. No cells were noted. Sugar was 125 mg. per cent, chloride 715 mg. per cent, total proteins 36 mg. per cent, Wasserman negative, but there was not sufficient fluid for colloidal gold reading. Electroencephalogram revealed a diffuse and symmetric low voltage 4 to 6 cps. activity, with superimposed fast activity. There appeared slower and higher voltage 2 to 3 cps. activity in both occipital areas. The impression was an abnormal electroencephalogram due to drug effect. The white blood count continued to show a leucocytosis of 12,800 cells per cu. mm., with a differential count of polymorphonuclear leucocytes 80 per cent, lymphocytes 16 per cent and monocytes 4 per cent. The urine still showed clumps of white blood cells. Her temperature became normal by December 16th. It was believed that the elevated temperature, the blood picture and the urine findings were due to a pyelitis plus dehydration. Neurological examination on December 17th still revealed the presence of bilateral Babinski signs and in addition, it was noted that the patient had slowness in speech with poverty of expression, moderate tremor of the extremities, especially the lower, and moderate cogwheel rigidity of all extremities, and both feet were held in extension. Blood chemistry on December 17th revealed calcium 10.3 mg. per cent, phosphorus 2.6 mg. per cent, alkaline phosphatase (Kings Armstrong Unit) 4.5, cephalin flocculation negative, total proteins 5.6 grams per cent, the albumen globulin relation being $3.3/2.3 = 1.4$ grams per cent, the ratio of cholesterol/esters $168/95 = 57$ mg. per cent and bilirubin 30 minutes equivalent to .04 mg. per cent. The electrocardiogram on December 17th revealed a sinus tachycardia. The Aschheim Zondek test could not be ascertained as the specimen of urine was considered toxic and the animal died. The patient refused a pelvic examination, but the obstetrician stated she was about two months pregnant and that the pregnancy was considered not to be complicated by eclampsia. Ophthalmological examination revealed normal eye grounds. All medication was discontinued on December 16th. The sedimentation rate on December 17th was 13 mm. per hour and the hematocrit volume was 30 per cent. The glucose tolerance test showed the first specimen to be 60 mg. per cent, the second specimen 85 mg. per cent, the third specimen 89 mg. per cent, the fourth specimen 85 mg. per cent. The urinalysis revealed no sugar. Urinalysis and blood count were normal. An electroencephalogram, taken on December 22nd, revealed slowing with higher voltage, 55 to 6 cps., in the left occipital region, which was considered to be a mildly abnormal electroencephalogram, showing a focus in the left occipital region, as compared to the previous electroencephalogram of December 16th. Her husband signed her out, against advice, on December 22, 1959. At that time she still

showed moderate cogwheel rigidity of all extremities, but greater in the lower, and the right Babinski sign was still present. She was discharged with the diagnosis of central nervous system complication due to perphenazine, markedly miproved. The patient was re-examined one week after discharge by her neuropsychiatrist (I.F.). There was no evidence of any extra-pyramidal involvement and no Babinski sign could be elicited, neurological examination and physical status being normal. Follow-up studies revealed that the patient continued to be in good physical and emotional health and she gave birth to a healthy girl August 3, 1960.

Discussion

Following the ingestion of 88 milligrams Trilafon, given over a period of eleven days, the patient developed marked tonic spasms of the body, which subsided within a few hours after the administration of Demerol. As her nausea continued, Trilafon was again given, which caused a recurrence of the tonic spasms of the body. Daily, for three days, the spasms would be relieved, only to recur, her obstetrician continuing to give her Trilafon, apparently not realizing the connection between the tonic spasms and the Trilafon therapy. These spasms, the restlessness and agitation were finally controlled by large doses of sedatives which led to a comatose state for 24 hours. The spasms were so marked that a dislocation of the left side of the jaw occurred. During the tonic spasms, bilateral Babinski signs were present. After she recovered from the comatose state, the tonic spasms of the body were absent, but the bilateral Babinski signs were still evident, and both feet were held in extension; she also had evidence of parkinsonism.

On discharge, eleven days after admission, there was marked improvement in the Parkinson syndrome and a right Babinski sign was still present. A week after discharge from the hospital there was no evidence of any central nervous system involvement. It appears to us that the tonic spasms were not due to extrapyramidal symptoms, but to irritability of the cerebral cortical cells, also shown by the findings of bilateral Babinski signs. The electroencephalogram showed definite evidence of a diffuse involvement of the brain attributed to a drug effect. It can be said that the tonic spasms were an overflow of the extrapyramidal symptomatology, involving the cerebral cortex, and as improvement occurred, the parkinsonian signs became evident. However, we believe that the tetanus-like reaction was actually due to cortical involvement and was distinct from the extrapyramidal symptoms.

Conclusion

1. We have reported an unusual central nervous system complication of perphenazine (Trilafon) toxicity, namely, dislocation of the jaw with the finding of bilateral Babinski signs. After 48 hours, a right Babinski sign and extrapyramidal symptomatology were still present. Within two weeks there was no evidence of central nervous system involvement.

2. We believe that the tonic spasm associated with perphenazine is due to cortical irritation and is not related to the extrapyramidal effects of the drug.

3. The central nervous system complication of the perphenazine had no adverse effect on the pregnancy.

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Obstacles in the Psychotherapy of Psychotic Patients

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Reports over the past 20 years from many investigators indicate that it is possible to do psychotherapy with psychotic patients including chronic cases and those who have failed with other modern treatments. Of course there have been no substantiated claims that relapses can be prevented or that all patients will progress even to their prepsychotic personalities. What can safely be said is that psychotherapy is a strong force that can effect patients hitherto considered beyond the influence of such an approach.

Our present report represents observations gleaned from approximately 20 cases taken into psychotherapy by the psychiatrists and psychologists of Cleveland Psychiatric Institute during the past year. In a setting where the goal of treatment is to return patients to the community as quickly as possible drugs and electric shock treatment are used for the most part along with socializing influences which will help patients conform to community standards of behavior. Those patients who did not respond to the more usual treatments, or who suffered relapses, became candidates for the new psychotherapy program.

In our own efforts to study what happens when this form of therapy is introduced into a hospital where not a great deal of such work had been done before, we have observed that such psychotherapy involves, perhaps inevitably, a large number of external factors in addition to the personality dynamics of the persons involved. This is understandable since the psychotic, by virtue of his helplessness, is more dependent than the normal or neurotic upon the people with whom he deals and the environment in which he finds himself. It is further understandable if we consider the fact that the patient's recent and remote past have been characterized by environmental inconsistencies. As a consequence, a consistent environment is one major therapeutic source providing a rectifying emotional experience for the patient. It is true that the patient himself does much to foster a non-therapeutic and inconsistent environment. He is difficult and volatile, swiftly changing from loving to abhorring his would-be-helper. His behavior and symptoms evoke a variety of responses from the people in his environment who rise and fall with the patient's own fluctuations. But the patient himself is only a portion of the problem. There are a variety of "built-in" obstacles to psychotherapy which have little or nothing to do with the patient himself. These include such factors as the influence of relatives and other patients; the physical aspects of the ward with its potential for discomfort, lack of privacy and freedom; professional ideologies with their concomitant treatment fads, stereotyped attitudes, and differences of opinion; societal values and the hospital culture with their influence upon staff attitudes and upon patients particularly as transmitted through staff; real problems which exist for the patient outside the hospital setting; and many others.

Before discussing some of these factors in greater detail, it is important to point out the effects of such difficulties on the therapist particularly in a training hospital where many staff members are gaining initial treatment experiences. Difficulties encountered by the novice therapist from unexpected sources may irritate him to the point of discouragement and lead to a feeling that it is impossible to help the patient. It should be emphasized that once the proper perspective is reached and the total field involved in the illness is comprehended, the therapist will find that obstacles are a routine concomitant of the treatment procedure, like bleeding during surgical operations. They are not insurmountable, although one occasionally encounters a checkmate situation.

Staff attitudes are important. At the outset of our program it became clear that some of our potential therapists had preju-

From the Cleveland Psychiatric Institute and Hospital.

Read at the annual meeting of the Ohio Psychiatric Society, 1960.

dices against entering into a therapy relationship with psychotics. Some, disregarding the evidence of recent literature, persist in their belief, that the psychotic cannot form transferences; others having placed a diagnostic label of schizophrenia on the patient, follow Kraepelin's hopeless attitude on prognosis. There were some therapists who did not like their patients or who were adversely affected by his symptoms. There were others who were discouraged by lack of success using methods applicable for neurotic patients. Finally, there were some who had no confidence in their own ability. These attitudes interfere with successful treatment and have led to a conclusion that a therapist can work most effectively only when he has a conviction that improvement is possible even with unmotivated patients. He should be able to accept the patient with his symptoms and have confidence in his own ability. It is unreasonable to become discouraged when methods designed for neurotic patients do not work with psychotics.

In addition to the patient's therapist, other personnel involved in the treatment and the milieu of the patient play an important role. For example, nurses have their own barriers against the psychotic, which take the form of fears of spoiling them, of showing favoritism. Such attitudes of course prevent giving enough in time to any individual. The excuse is invariably offered that if they please one patient others will suffer. Nurses do not seem to have these attitudes on surgical wards, one reason being that the physically sick patient who needs special attention is easier to recognize. It is ironical that patients are rarely considered well by the community and by industry but are rarely considered really sick by nurses who often see symptoms as wrong behavior rather than as evidence of disease. The nurse's attitude is most likely a reflection of hospital policy of pushing the patient in the direction of social adjustment. We have noticed that as psychotherapy becomes an accepted part of the hospital treatment program, the nurses do become more tolerant of regressed behavior. Also our social group workers who subtly lead our patients toward a social adjustment, are beginning to provide for the role of the sick person in the hospital community, a role curiously lacking in some psychiatric settings.

We have also attempted a program of separation of psychotherapeutic and case management functions. Occasionally, certain kinds of disagreements between administrators and therapists appear certain to lead to interference with treatment progress despite the fact that Stanton & Schwartz's[2] hypothesis about the harmful effect of covert disagreement among the personnel is difficult to corroborate. If the ward administrator and therapist disagree about the patient's readiness to leave the hospital, the latter's progress may be completely stymied. He can make no further gains at the hospital, yet if he leaves he fears that every twinge is a manifestation of his illness. This may lead to panic and the patient's return to the hospital, proving to the administrator that the patient is really not ready to be out on his own. Such a patient at this delicate stage of treatment is, and this may sound strange, just as sick as we believe him to be. The reassurance necessary for the first few steps out of the hospital is not forthcoming and the division of opinion leaves him confused. The patient is at this point in danger of developing what we call hospitalitis—an over-dependence on the hospital.

In addition to the staff attitudes already mentioned many other aspects of the hospital milieu and culture play a role. For example, as hospitals, or any organization for that matter, become more highly organized and administratively complex, formal policies and procedure supplant individual decisions reached through interpersonal contact and agreement. The consequent red tape and impression of officiousness carries with it the implication that people count for less than rules and customs. This appears to be capable of strongly influencing the healing process, not only directly but indirectly as well, by reducing the existing emotional temperature expressed in friendliness or coldness in casual contacts between the personnel and patients.

Another aspect of hospital culture is re-

lated to existing philosophies of treatment. It has been observed by Greenblatt that when a certain treatment becomes a favorite or appears to be the fashion in the hospital, all patients feel they must have it; otherwise they may consider themselves reduced to the level of second class citizens. One of our patients did not count psychotherapy as real treatment and constantly complained of being deprived and left out when the drugs were distributed. Thorazine like placebos effectively silenced this complaint. Greenblatt's patients felt deprived if they did not receive the psychotherapy that had become the favorite treatment at the Massachusetts Mental Health Center.

When a new therapy is employed which runs counter to the prevalent treatment philosophy, the occurrence of crises take on special significance. This is particularly true in the consideration of suicidal gestures, assaultive behavior, verbalization of homosexual fantasies or the withdrawal from group activity, all of which are regarded as evidence that the new program is not working and should be discontinued.

On the ward itself the other patients and the very physical aspects of daily life subtly influence recovery of the psychotic. The loud blustering arrival of a newly admitted patient, or a homosexual advance, have been observed to have deleterious effects on recovering patients. For some a setback occurs when an established relationship becomes fragmented as personnel come and go or get caught up in new duties. For others, the noise or lack of noise on the ward is an irritant as patients cannot tune the radios and television sets in a manner that will please each individual. We have seen a patient begin to hallucinate as the hospital paging system went on. All in all it seems that healing cannot keep pace with the disintegrating forces. Invariably some patients are sufficiently affected by such events of ward life as to require, in our opinion, permission and opportunity to regress in small anaclitic units where the many aspects of ward functioning may be closely controlled.

A well-known group of problem-creating people are, of course, the relatives. While their attitudes of rejection obviously hurt, sometimes a relative with seeming good intentions will tell a patient she is really not sick and wouldn't she like to come back to her cozy room at home. One such crude attempt to motivate a severe catatonic patient made her go by the door following visiting hours straining every muscle to get out. To be sure, many relatives in this current series were supportive to the patients and cooperative with the therapists, a finding not often encountered or not considered worthy of mention in the literature.

One final problem should be considered. During the time the disease is running its course in the individual, the mere fact of his having a mental breakdown is piling up difficulties which will tend to block his ultimate recovery. The damage to his reputation is very real as he quickly learns when he goes back to his family, or seeks work, or applies to Civil Service or the Army, or even for a driver's license. Financial problems may loom large. Time has corroded his skills and his initiative and deprived him of his place in society. We think that precipitation of delusions of grandeur and of fire-setting in one of our adolescents was brought about by the therapists's persistently ignoring the patient's concern over falling behind in his school work, with the consequent development of unacceptable feelings of powerlessness and hopelessness. Frank discussion of this problem and an attempt to tutor him were instrumental in alleviating this acute flareup. This example points up an important difference between psychotic and neurotic patients. When the neurotic develops insight into his needs, he usually is able to provide for them; the psychotic cannot do this, either because he is lacking in skills and the possibility of enhancing these skills, or he is a prisoner. Talk alone cannot be effective in the face of such real powerlessness. In fact, continued talk will make the patient lose respect for the therapist. Something has to be done for the patient—tutoring, help in finding work, or other procedures designed to alleviate a real and stressful external problem.

Due to time limitations it has been necessary to skip over many of the observed obstacles in a cursory fashion. It was our original intention to investigate aspects of the psychotic process which had relevance for the problem of resistance to treatment. It should be apparent by now that our focus shifted as we found so many causes for treatment impasses in factors external to the patient. Our observations are not surprising but do serve to highlight the fact that the treatment of the psychotic patient requires a comprehensive and sensitive view of the interaction of the illness with every aspect of the environment in which the illness is occurring. It is futile to attempt to shut the office door, figuratively, and work with the patient alone. The outside is there whether we want it or not and obstacles are ever present. It may well be that what we have termed obstacles represent the very battleground on which therapy must take place and the major therapeutic task involves the overcoming, not merely the analysis, of one obstacle after another. One cannot make a prognosis in psychosis unless one knows the readiness of the hospital to treat such illnesses; the prognosis says as much about the treatment facility as about the patient.

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Comments on the Present Status of Child Analysis

HERBERT FREED, M.D.

Even a casual survey of the field of child psychiatry reveals that while there is considerable resistance still manifested by the child guidance clinic to the utilization of psychopharmacologic agents for the disturbed child, there is an increasing demand for the use of "child analysis" as a technique rather than just child guidance.

Child analysis primarily has the same aim as adult analysis and is essentially a defense analysis. The technique pre-supposes ability of the child to communicate with the analyst by means of verbalizations. The Melanie Klein group believes that analysis is applicable to the extremely young infant even before speech is developed, whereas the Anna Freud group feels that speech must be established.

The constitution of the child at birth is important in at least two major respects. The child may have certain innate deficiencies or unique qualities which are a handicap to the maintenance of his physiological and/or emotional equilibrium. For example, a poor sucking reflex can interfere with proper nutrition, which in turn disturbs his sense of well-being, and can impair the development of a healthy relationship with the mother. Or a child with an innate hypersensitivity to stimuli can develop excessive tension which cannot be adequately assuaged by the mother, and subsequently can not be adequately dealt with by his own ego.

Secondly, the constitution predetermines the timing of biological maturation. According to the definition of Hartmann and Kris, maturation is always biologically determined, whereas development is determined by the interaction of biological maturation and environment. Maturation and development ideally should parallel each other. When they do not, the potential for neurosis exists.

For example, we know that voluntary motor control of the external sphincters of the bladder and bowel normally is not possible much before the age of 18 months. This is due to the fact that the nerve pathways connecting cerebral cortex and lower motor neurons are not fully myelinated until this time. Accordingly, if a mother initiates and forcefully persists in toilet training with an eight-

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month old infant, maturation and development cannot be reconciled, and from the viewpoint of the infant, his ego is presented with an impossible task. Conversely, the onset of puberty and menses in a nine-year-old girl will considerably antedate her developmental preparation for this event. Her ego also must struggle to reconcile the discrepancy between her emotional development and her biological maturation.

A third factor relates to the ontogeny of the child and the fact that "an actual experience through which a child lives, and the direction this experience may give to his life largely depends on the specific phase of the child's development." Thus, serious injury to the mouth occurring in a one year old child is more likely to be of traumatic significance than a similar injury occurring in the same child at the age of five years. Similarly, a difficult hospitalization and tonsillectomy experience taking place when a child is five or more is likely to be emotionally traumatic because of its association with the fear of castration normally present at this ago, than is the same experience occurring at the age of ten. The term given to this concept is "phase-specific vulnerability."

Lastly, a factor which both contributes to the general vulnerability of the child and explains why neurosis has its beginnings in early childhood years is the immaturity of the child's ego with its relative paucity of ego-integrative and ego-adaptive functions. This immaturity accounts for the tremendous importance of the early child-mother relationship. The maternal, auxiliary ego must compensate for the undeveloped ego functions of the child, endeavoring to protect from excessive stimulation, to assuage tension and generally to keep the physiological and psychological homeostasis within reasonable bounds. This same factor also helps explain why major injuries, illnesses and surgical procedures are so frequently psychologically traumatic to children.

We wish to stress that the role of constitution deserves careful consideration not only in the general theory of neurosis formation but also in the study of the development of neurosis in a particular patient. Also, we wish to mention that constitution is of even greater importance in the genesis of the more serious childhood disturbances such as childhood psychosis. However, psychoanalysis has been more occupied with environmental influences than with constitution, for the obvious reason that constitution is immutable whereas the impact of environment potentially is reversible.

The remainder of this discussion of the theory of development of neurosis will be concerned with the dynamic interaction of child and environment. According to our understanding, the dynamics of normal personality development and of the development of neurosis are similar in nature. The growing-up process inevitably and therefore normally is laden with frustration, some of it inherent in biological maturation, and the rest of it presented by the environment. Reasonable or normal amounts of frustration facilitate development and adaptation by calling forth the innate ego capacities. Every child must face and defensively resolve the conflicts associated with the normal phase of development. Neurosis results when the ego cannot maintain equilibrium because of excessive frustration with resulting excessive tension and overly strong *id* impulses, or because of innate deficiencies in the child which make him unable to cope with usual amounts of frustration.

The same characteristics which make the child amenable to training and education also make him vulnerable to neurosis. We refer to his immaturity and helplessness which make him dependent upon the parents for care, and to his need for love. In order to continue receiving love from the parents the child represses these drives, feelings and impulses which evoke strong disapproval from the parents.

The emotion-stirring and blame-placing statement, "there are no problem children, only problem parents" is based on this kind of reasoning. Although the influence of the parent is crucial in psychogenesis, there nevertheless are "problem children," and more important from our viewpoint as analysts the problem child also has an intrapsychic problem. This being the case, it follows that

the part of the problem which is intrapsychic can no longer be dissolved simply by changing the environmental attitudes. Attention needs to be given to the problem in the child. Furthermore, adequate treatment of the intrapsychic problem in the child in many cases will enable him to get over his problem and stay well, even though there has been no real change in the parents.

The transference neurosis which is the vehicle of analysis in the adult patient cannot be counted on in child analysis. In the grown-up patient the transference neurosis develops because he unconsciously perceives the analyst as a later edition of the no longer available original love objects—the parents. In the child, however, his unsolved infantile attitudes and unfulfilled claims are directed towards the parents who still are available to him. The child's real and necessary dependency upon the parents does and should make the relationship with the analyst considerably less important than the relationship with the parents. Yet it is necessary that the child develop a good relationship with the analyst because he can bear the tensions associated with analysis only if he likes the analyst. For the same reason negative transference generally is undesirable in child analysis, and when it begins to appear it is dealt with immediately in order to keep it from becoming a wedge between the child and the analyst. On the other hand, the positive transference is encouraged to grow gradually, and generally is not interpreted because doing so makes the child too much aware of his liking for the analyst tending to make him feel disloyal to his parents. The usual and quite understandable result is that the child withdraws libido from the analysis and reinvests it in the relationship with the parents thus secondarily reinforcing the neurosis.

As we consider the major technical differences between child and adult analysis, it becomes clear that these differences are due to the immaturity of the ego of the child with the consequent relationships it creates between him and his environment. The child does not come of his own accord; most often he is brought for analysis because of the troublesome effect of his neurosis upon the family, not on himself. Therefore he lacks the motivation of the adult. The couch cannot be used except possibly in the older adolescent. In fact, the "motor-mindedness" of the young child makes even sitting still impossible. He translates his tensions into activity both in and out of the analysis. He cannot follow the basic analytic rule of adult analysis—free association. He cannot tolerate long silences, nor can he tolerate a situation of negative transference. And as has been mentioned he does not develop a full-blown transference neurosis.

The analytic technique has been successfully adapted to child analysis; as in adults the analyst allies himself with the ego of the patient. However, the younger the child or the more disturbed he is, the more is the child's analyst's ego called upon to make every facet in the child's ego available for the therapeutic task.

Communication is imperative between analyst and analysand in child or adult analysis. The child is not inclined to verbally free associate. The child analyst must have acquired the additional skills to understand the child's language in whatever form it is offered. Suitable communications are made through verbal productions, use of play, games, story telling, art work, dreams, etc.

One of the most important substitutes for the free association of the adult has been delineated by Anna Freud in the "Ego and the Mechanisms of Defense." According to her theory we consider the child's affect to be of great importance in order to further our understanding of the defensive nature of the material. When an affect is disproportionately strong or weak in terms of the material it accompanies, or if it is inappropriate, we trace back to the original affect though understanding the defenses against the original affect. Because of the primitiveness of the child's affects and the relative transparency of his defenses the analyst has a tool here that is not available with the adult.

The prime indication for child analysis is a neurosis of such seriousness that without such deep and intensive treatment, mental

health could not be restored. The evaluation that such a situation exists is more subtle than in the adult, since it cannot be based on the same diagnostic and prognostic judgment. The diagnostic categories are less clear than in the adult. We see in the child defensive patterns of behavior which, if they were to continue and to become more deeply ingrained could, by adulthood have progressed into pathological character formation, or full-blown neuroses. In the child we seldom see the definite "obsessive-compulsive" or "hysterical neuroses."

Secondly, the appearance of seemingly regressive behavior in the child lacks the significance of similar behavior in the adult. The overlap of stages of libidinal development in the child makes even the normal child present concurrent evidences of oral, anal and oedipal strivings.

Thirdly, even in the most ideal situation, every child must, in the course of maturation, meet and react to many tensions and frustrations. So, it is to be expected that every child will at some time show fears, temporary behavior problems, outbursts of aggression, passivity, motor disturbances and the like.

Even concern of the parents is not necessarily proportionate to the severity of the problem. Most parents, especially those who have not themselves been analyzed, bring children to analysis because of the degree to which the child's problems create difficulties within the family or are, as in the case of tics, obvious to the outside world. Much less frequently are children brought because of their own internal suffering. Even the child's discomfort is not an accurate measure of the severity of the problem, since once defenses have been established, little anxiety may be experienced by the child. Therefore, the arrest of, or gross interference with normal ego development are the prime indications for this treatment. To evaluate the need for treatment, the child analyst may use the many evidences of ego impairment.

The degree and severity of such signs as regression and fixation should be determined; the onset and duration of these established; the degree to which the child's performance is at variance with his expected development estimated both in comparison to his previous rate of mastery and the average of his age. Taken all together we must evaluate how much interference there is with ego functioning and to what degree we can consider this problem as reversible without treatment. When less intensive treatment will suffice, psychoanalysis is not the treatment of choice.

Contraindications center around an aspect of child analysis mentioned before—mainly, the dependent position of the child in the family. The child cannot be analyzed without the consent and cooperation of the parents. Therefore, when the limitations of the parent's awareness of the need for treatment, or lack of interest in the child's analysis, makes it unlikely that the analysis will be carried to completion, or when the family psychopathology is too great, it is better not to undertake the analysis of the child.

In spite of conscious motivation, the parents' unconscious fears of the analysis, jealousy of the analyst's role in the child's life, or an unconscious reluctance to have the child give up his neurosis, may make analysis untenable. These parental fears, doubts, and unconscious resistances occur in more or less degree in every child analysis. It is a function of the analyst to help the parents through these understandably painful tensions. Where the family psychopathology is too great, or if the aim of analysis is in direct opposition to the needs of the parents, treatment should not be started.

We summarize the indications of child analysis as being:

(1) For individual therapy.

(2) For selective patients who will not respond as promptly to other forms of psychotherapy for children.

(3) For the research value of child analysis. The findings are used to confirm or reject psychoanalytic hypotheses.

(4) For the prophylactic value; the findings of child analyses can be utilized for the mental hygiene value.

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Subjective Feelings About Tranquilizing Drugs

LEWIS J. SHERMAN, PH.D.

The data reported were obtained as part of a larger investigation concerning the relationship between patient attitudes and drug responses. In the course of developing items for the author's Medication Attitude Test, more than 300 patients were asked for their subjective feelings—both positive and negative—about tranquilizing drugs.[1] In view of the paucity of literature on this subject,[2] it was felt that a brief summary of these reactions would be of some interest in their own right.

Positive Feelings: The most frequently offered reason for liking medication was a general statement that "it helps" or "makes me feel better." A more specific reason which was second in frequency of mention concerned the "relaxing, calming, soothing" effects of drugs. Many patients also mentioned specifically that it "reduces their nervousness and tension." The improved sleep that results from medication was the third most popular reason advanced in its favor. Finally, a number of patients liked medicine simply because they had "faith or confidence" that it would benefit them without specifying any particular positive action.

Negative Feelings: By far the most frequent unpleasant characteristic of drugs was their "sleepy, groggy, tired, and drowsy" side effects. More than half of the patients considered this their most unfavorable reaction. A considerable number felt it has a "bad taste" which makes them "uncomfortable and sick." The third most frequently mentioned reason for disliking medication was a vague general fear that "it could harm me" or "make me worse." Finally, a number of patients were negative toward drugs because they really "didn't need them" and had no understanding of their action or the reason for their prescription.

Recent articles have emphasized that the drug response is a complex function of the interaction between the drug, the social setting, and the patient's personality and feelings about this mode of treatment.[3,4] In view of the many unknown chemotherapeutic variables, it seems advisable to study further these subjective feelings as they may well prove to be important determinants of a patient's response to medication.

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Book Reviews

LEUCOTOMY IN ENGLAND AND WALES 1942 - 1954, by G. C. Tooth and M. A. Newton. Reports on Public Health and Medical Subjects No. 104. London, 1961. H. M. Stationary Ofc., pp. 36, with 23 tables. Price 2 s. 6 d.

It is estimated that some 12,000 leucotomies have been performed in England and Wales since the operations were introduced in 1942. This is a follow-up report of 10,365 patients who had a single operation for mental disorder The numerous tables give information on various aspects: the case material, age, sex, diagnostic group, length of illness, type of operation, etc. The data were furnished by 110 hospitals.

The authors are commendably cautious in ascribing to the operations the whole credit for the results obtained. In seeking levels of improvement, they grade patients, but with considerable overlap. For instance, 5 levels of adjustment outside the hospitals and 5 levels of hospital adjustment are tele-

scoped into 7 goups, the middle 3 comprising the "greatly improved; family invalid and social improvement; family burden and social defect," with total and social recovery at the top and no change or worse at the bottom. Of 9284 patients surveyed 25% were unchanged and 2% worse, and in 4% death was due wholly or in part to the operation. Thus, after a lapse of 5-13 years the percentage of improvement was 69. Schizophrenic patients made up about two-thirds of the total, and while the results were less favorable in these cases (40% males, 35% females unchanged, worse or dead) than in the affective or "other" disorders, nevertheless the impact of operations on these chronically ill patients is revealed.

When the survey was completed, 46% of all patients were out of the hospital. Considering that only 14% of these patients had been operated upon before the lapse of 2 years, the results appear remarkable. Furthermore, the long period between operation and discharge seems to indicate that improvement is progressive in most cases while short-lived in a few. There were 21% relapses, mostly in younger schizophrenics, especially in those not discharged.

The authors particularly sought information upon the unfavorable effects of leucotomy. Persistent epilepsy accounted for 1.3% independent of sex, diagnosis and type of operation. The overall proportion of patients experiencing severe sequelae was 3.1%. Younger patients were less seriously affected than those over age 55.

In summary: "The figures show that 41% of the survey patients had been ill for 6 years and over. Also, 41% are reported as having at least greatly improved after operation. It has been said that the best results from leucotomy may be expected if the operation is performed early in the course of the illness. But the survey shows that there was greater improvement than would have been expected without surgery, even when used as a last resort, in a considerable proportion of patients in whom the prognosis would, at the time, have been regarded as most unfavorable."

The appendix lists "total recovery" of 41 schizophrenic patients ill more than 7 years, with another 62 considered "social recovery." This is based upon a follow-up of one-third of this discharged group, so that it may be inferred that at least 300 chronic schizophrenics were restored to the community after an average of 10 years of illness. The conclusions of the authors seem concervative.

Walter Freeman, M. D.

SYMPTOM DIAGNOSIS, Fifth Edition, by Wallace M. Yater and William Francis Oliver, 951 pages, $15.00.

When a book reaches the age of 34 years and a 5th edition is called for, this alone is testimony to its usefulness. The extensive revisions in this edition amount to an almost complete rewriting of the text. The volume is intended for handy reference for a busy physician called upon to make differential diagnosis quickly and, therefore, there is no effort made to describe the disease processes in depth.

The various symptoms are divided either according to regions or general distribution and various disease possibilities are sketched under each heading. This permits the reader who consults it to visualize all possibilities and prevents the chances of oversight of some unusual conditon.

The authors have read and abstracted widely from authoritative sources and note with surprise that though symptoms have changed little, a number of new diseases have been described since the fouth edition was publised 19 years ago. The book has a number of tables of differential diagnosis and a valuable appendix which contains descriptions of illnesses and symptoms associated with men's names. This latter has always been a hazard for student and physician alike.

This concise ready reference book is a valuable one which might readily keep the physician up-to-date.

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Proven

in over six years of clinical use and
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Effective

for relief of anxiety and tension

Outstandingly Safe

1. simple dosage schedule produces rapid, dependable tranquilization without unpredictable excitation
2. no cumulative effects, thus no need for difficult dosage readjustments
3. does not produce ataxia, change in appetite or libido
4. does not produce depression, Parkinson-like symptoms, jaundice or agranulocytosis
5. does not impair mental efficiency or normal behavior

Miltown®

meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.
Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets; in bottles of 50.

Also supplied in sustained-release capsules . . .

Meprospan®

Available as Meprospan-400 (blue-topped *sustained-release* capsules containing 400 mg. meprobamate), and Meprospan-200 (yellow-topped *sustained-release* capsules containing 200 mg. meprobamate).

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